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ANALYTICAL RESULTS REPORT
COLLEGE OF THE CANYONS SMELTER SITE
CANON CITY, COLORADO
TDD #T08-9410-014

Prepared for:

U.S. Environmental Protection Agency
Region VIII, Denver, Colorado
Hays Griswold, On-Scene Coordinator
Pat Smith, Site Assessment Manager

Prepared by:

Ecology and Environment, Inc.
Technical Assistance Team
D'Arcy Straub, Project Manager
Mike Sullivan, Assistant Project Manager

Date Submitted: April 7, 1995

APPROVALS

D'Arcy Straub Project Manager	4/7/95 Date	Pat Smith Site Assessment Manager	6/26/95 Date
Randy Perlis TAT Leader	4/7/95 Date	Hays Griswold On-Scene Coordinator	Date

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1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Superfund Amendment and Reauthorization Act of 1986 (SARA), and in response to Region VIII U.S. Environmental Protection Agency (EPA) Technical Direction Documents (TDD) #T08-9406-008 and #T08-9410-014, the Ecology and Environment, Inc., (E & E) Technical Assistance Team (TAT) was tasked to perform a site inspection at the College of the Canyons Smelter site, CERCLIS ID # COD116263781, located near Canon City, Colorado.

This Analytical Results Report (ARR) was prepared to partially fulfill the requirements of the referenced TDDs. From August 15 through August 31, 1994, a site inspection was conducted at the College of the Canyons Smelter Site in Canon City, Colorado. The site inspection was conducted pursuant to the Sampling QA/QC Work Plan approved by the EPA on August 12, 1994. A Sampling Activities Report (SAR) detailing the activities of the site inspection was submitted on February 21, 1995. This ARR provides the analytical results for the samples collected during the site inspection and subsequently described in the SAR.

2.0 OBJECTIVES

Air, water, soil, and sediment samples were collected at the College of the Canyons Smelter site to accomplish two objectives:

- to obtain the essential data needed to rank the site using the Hazard Ranking System (HRS) by characterizing the waste source and the pathways by which the waste has traveled if a release from the waste source has occurred; and
- to determine if threats to human health or impacts to the environment exist at the site. This objective will be accomplished through characterization of the waste source and pathways in combination with target population information.

High volume air sampling (hi-vol) was used to measure the metal content of suspended particles in the air, thus confirming whether or not metals were being released to the air pathway from the waste source. TAT members Sullivan and Straub conducted the hi-vol sampling from August 16 to August 19, 1994, and from August 23 to August 25, 1994. Samples collected during this event for analysis of ICP metals using QA level II, were delivered to CKY Laboratories in Wheat Ridge, Colorado on August 22 and 26, 1994. Soil samples were collected to characterize the waste source, and sediment samples were collected to characterize the migration of contaminants from the waste source via the water pathway. Soil and sediment samples for field screening and HRS scoring were collected by TAT members Alexander and Mayer from August 23 to August 25, 1994. On August 31, Alexander and Sullivan collected sediment samples. The field screening samples were analyzed by a TN Technologies Spectrace 9000 XRF spectrometer. The HRS samples were delivered to CKY Laboratories on September 13, 1994, for cyanide and/or Hazardous Substance List (HSL) metals using QA level II criteria.

Surface water samples were collected to determine if releases from the waste source were entering the Arkansas River. There are three ditches carrying run-off from the site. These ditches join Forked Gulch at a point north of the site. Forked Gulch then continues to flow north approximately 1 mile, where it enters the Arkansas River (Figure 7). Sampling along the water pathway was conducted by TAT members Alexander and Sullivan on August 31, 1994. The samples were delivered to CKY Laboratories on September 13, 1994, for HSL metals analysis using QA level II criteria.

3.0 SITE DESCRIPTION

3.1 Site Location and History

The College of the Canyons Smelter site encompasses approximately 60 acres and is located 1.5 miles south of the Arkansas River in Canon City, Colorado. The waste on the site consists of tailings, dirt, and slag that contain high levels of metals. The coordinates of the smelter stack, which remains standing, are 38° 24' 43" North latitude and 105° 14' 58" West longitude. The legal site description is the northwest quarter of Section 8, Township 19 South, Range 70 West (Figure 1).

3.2 Background Information and History

The College of the Canyons Smelter Site operated under the direction of the New Jersey Zinc Company. The smelter processed ore particularly rich in zinc and lead that was obtained from the Eagle Mine and Mill in Gilman, Colorado. The smelter operated from 1902 to 1968, and was capable of processing 90 tons of ore per day. After the smelter closed in 1968, the site was purchased by the Canon City Chemical Company, which used the mineral-rich tailings as a soil additive. The operations of the chemical company continued until 1991.

In May 1991, the Emergency Response Branch (ERB) of the EPA removed 155 drums from the site because of potential threats to the environment. At that time, the EPA did not address contaminated soils, waste rock, and tailings from smelter activities. In June 1994, the EPA-ERB and the TAT performed a reconnaissance survey of the smelter site, which included X-ray fluorescence analyses of 17 soil samples. In a majority of the samples collected from on-site soils and waste piles, analyses revealed elevated levels of several metals, including cadmium, lead, mercury, and zinc.

4.0 FIELD ACTIVITIES

4.1 Sample Collection and Field Observations

4.1.1 Soil Sampling

From August 23 to August 25, 1994, fifty-five soil samples were collected by TAT members Alexander and Mayer (Figure 2). Sampling was biased, but a sufficiently large number of samples was collected to ensure a dependable representation of the site. All soil samples were collected with dedicated teflon scoops and were placed into plastic bags which were then secured with tape. The sealed sample bags were placed in a cooler with ice for sample preservation.

Of the 55 soil samples, 10 were split and subsequently delivered to CKY Laboratories for HSL metals analysis using QA level II criteria. Figure 3 illustrates the locations from which the split samples were collected. The 10 samples selected for metals analysis were pre-

screened by a TN Technology XRF Lead Analyzer, which is capable of analyzing for iron, copper, zinc, lead, arsenic, and manganese. The samples selected for analysis contained a broad spectrum of metal concentrations.

Most of the soil samples were surface samples, although five samples (CC-XRF-041 through CC-XRF-045) were collected by a hand auger from a depth of 18" below ground surface (bgs). Four of these samples were split and delivered to CKY Laboratories for HSL metals and cyanide analyses using QA level II criteria. These four samples and their corresponding splits were as follows: CC-XRF-41 (CC-SO-10); CC-XRF-42 (CC-SO-11); CC-XRF-43 (CC-SO-12); and CC-XRF-45 (CC-SO-13).

In addition to laboratory analyses, all soil samples were analyzed for 21 metals with the Spectrace 9000 XRF spectrometer. The analyses were conducted under QA Level I screening criteria.

The types of soil samples collected can be categorized into three groups:

- those obtained from tailings, obvious because of their dark red, grayish, or orange color;
- those collected from around building foundations, such as in the area believed to be the location of the assay office; and
- those obtained from locations where the soil appeared to be normal, or uncontaminated.

The uncontaminated soil samples served as background samples CC-XRF-030 (CC-SO-01) and CC-XRF-029 (CC-SO-02). The sample number in parentheses is the number of the sample that was obtained through splitting and was sent to a laboratory for QA level II analysis. Table 1 contains additional information about soil samples.

4.1.2 Surface Water Sampling

The majority of surface water samples were collected by TAT members Alexander and Sullivan concurrent with rainfall on August 31, 1994. Sample collection began at the Arkansas River and continued upstream into the drainage ditch to just north of Valley Road (Figure 4). TAT members Alexander and Mayer collected water samples CC-SW-18 and

CC-SW-19 on August 23 and 25, 1994, respectively. These two samples were collected from standing puddles of water outside the drainage ditches. Surface water sample CC-SW-02, collected upstream in the Arkansas River, served as the background sample.

The pH of the surface water samples was field screened with pH paper. Samples CC-SW-16 through CC-SW-19 possessed a relatively acidic pH of 2. Samples CC-SW-12 and CC-SW-13 were mildly acidic with a pH of 6, and the remaining samples exhibited a pH of 7.

The 19 surface water samples were collected in 1-liter polyethylene containers, preserved to pH 2 with nitric acid, and stored on ice. The samples were then delivered to CKY Laboratories where they were analyzed for HSL metals using QA level II criteria. Table 1 contains additional information about surface water samples.

4.1.3 Sediment Sampling

To further assess the release of waste to the surface water pathway, thirty sediment samples were collected on August 31, 1994, by TAT members Alexander and Sullivan (Figure 5). Three ditches carrying run-off from the site join Forked Gulch just north of the site; Forked Gulch then continues north to the Arkansas River. From an area just north of the site to the Arkansas River, Forked Gulch is a potential wetlands area.

Samples were obtained from the three on-site ditches, from Forked Gulch, and from the Arkansas River. Sample CC-XRF-112 (CC-SE-16), collected upstream in the Arkansas River, serves as a background sample. Samples CC-XRF-137 (CC-SE-01) and CC-XRF-139 (CC-SE-02) were collected upstream of the site from two of the three ditches. These samples also serve as background samples.

The procedures by which the sediments were collected and selected for analysis were identical to those used for the soil sampling procedures. Of the 30 sediment samples, 16 were split (Figure 6) and selected for HSL metals and cyanide analyses using QA Level II criteria at CKY laboratories. In addition to the QA level II analyses, the 30 samples were analyzed for 21 metals using QA level I criteria with the Spectrace 9000 XRF spectrometer.

Four additional sediment samples (CC-XRF-101 through CC-XRF-104) were collected by TAT members Alexander and Mayer from August 23 to August 25, 1994. These samples were collected from on-site locations where evidence of standing water existed. These samples were analyzed by the Spectrace 9000 XRF spectrometer under QA level I criteria. Table 1 contains additional information about sediment samples.

4.1.4 Air Sampling

TAT members Sullivan and Straub conducted the high volume air sampling. Eight high volume stations were established to determine a possible release via the air pathway (Figure 7). Five of the eight high volume stations were within a zero to 1/4-mile radius of the site. Three of the stations were located north of the site. Two of these stations were placed side-by-side to obtain duplicate samples for QA/QC. The remaining stations within a 1/4 mile radius were located at the College of the Canyons Campus and the Fremont County Business Development Complex. Three high volume stations were located at businesses or operations within a 1/4- to 1/2-mile radius of the site. These businesses or operations were the Colorado State Forest Service Shops, Fremont Auto Salvage, and the BFH Transfer Station.

The initial step in the operation of the high-volume air samplers (hi-vols) was calibration of the units with a calibrated variable flow orifice. Once calibrated, air flow through the hi-vols could be adjusted or calculated based on a manometer reading. Because accurate measurement of the meteorological conditions is important in the calibration and adjustment of hi-vols, a portable meteorological (met) station, capable of measuring temperature, humidity, barometric pressure, and wind direction and speed, was erected on site. The meteorological station is capable of continuous readings that can be stored and downloaded to a computer at a later time.

The hi-vols were operated for five 24-hour periods, during which they drew 50 cubic feet of air per minute (cfm). On August 19, 1994, after the third 24-hour period, operations were suspended due to a heavy rain storm that caused street flooding in Canon City. Had hi-vol operations continued, results would have shown a drastically reduced number of suspended particles in the air for the next 24 to 48 hours. Air sampling resumed on

August 23, 1994, and concluded on August 25, 1994, thus completing the five 24-hour sampling periods.

The suspended particles collected were drawn into the hi-vol and trapped by Whatman 41 cellulose 8" x 10" filters. To ensure that the filters were not cross-contaminated, dedicated gloves were used to install and remove the filters, and each filter was stored in a dedicated envelope. Manometer readings were taken at the beginning and end of each sampling period. Before a new sampling period was started, the hi-vols were decontaminated with a damp cloth to remove particles from the previous sampling period. The hi-vols were also secured to prevent them from being opened, which would potentially contaminate the filters.

A sampling period was defined as 24 hours; consequently, five filters were used in and collected from each of the eight hi-vols over the course of the 5-day sampling period. The sampling filters were delivered to CKY for ICP metals analysis. Table 1 contains additional information about air sampling activities.

4.1.5 Surveying

A surveying station was established at the northwest corner of section 8. The coordinates of all soil samples and the hi-vols on or near the site were obtained with the surveying station. Because of time restrictions and the distance over which the sediment and surface water samples were obtained, coordinates for these sample locations were not obtained, but the approximate location of these samples were plotted on an aerial photograph of the site. In addition to sample locations, site structures and site topographic features were also surveyed to enable creation of a site drawing; however, the site boundaries indicated on each sampling map are approximate.

4.1.6 Non-Sampling Data Collection

It is unlikely that drinking water near the site has been contaminated by the site. Although applications and permits for wells near the site exist, only one well, located approximately 3/4 of a mile north/northeast of the site, is hydrologically downgradient from the site.

Because of the availability of municipal water, it is unlikely that ground water is used for drinking water within 2 miles of the site.

There are no residences within 1/2 mile of the site. There are, however, several businesses. Businesses support 40 to 55 workers within 1/4 mile of the site, and 175 to 220 workers within 1/2 mile of the site. There are few residences within a 1-mile radius of the site. Much of Canon City is contained within a 4-mile radius of the site. As many as 12,000 to 15,000 people, based on population densities of Canon City, Lincoln Park, and Brookside, reside within a 1/2-mile to 4-mile radius of the site.

4.1.7 Field Observations

The site served as a smelter/ore processing plant. There are numerous tailing piles on the site, which are easily recognized by their dark red, orange, and/or gray colors. Pyrite crystals are abundant on the site, which is indicative of and consistent with the low pH of the standing water. The sulfur in the pyrite is oxidized to sulfuric acid, consequently lowering the pH of the water. The surface of the tailings is hard and crusty when dry. Although the wind was blowing during sampling periods, it did not appear to create a significant amount of dust.

In accordance with criteria outlined in the Code of Federal Regulations, Forked Gulch may be considered a wetland. Wetlands are comprised of areas saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. During a walk-through of Forked Gulch on August 25, 1994, TAT members Alexander and Mayer observed water seeping into Forked Gulch. Water was observed seeping from the points where samples CC-SW-13 and CC-SW-14 were taken to the Arkansas River. The amount of seeping water generally increased as Forked Gulch continued north toward the Arkansas River. Because substantial precipitation had not fallen in the previous 48 hours, it can be reasonably concluded that the area near Forked Gulch is saturated with ground water. This conclusion is further supported by the types of vegetation growing near Forked Gulch. As illustrated in several on-site photographs, the most obvious sign of soil saturated with water are the phreatophytic cottonwood trees.

4.2 Quality Assurance/Quality Control

Quality assurance/quality control was maintained in accordance with the *Emergency Response Branch Quality Assurance Plan*. Where dedicated equipment was not used to collect samples, TAT maintained the integrity of the samples by following extensive decontamination procedures. The sample containers used during this investigation included 1-liter polyethylene bottles for the surface water samples and small plastic bags or glass jars for the soil and sediment samples. The cellulose filters used for the air sampling were stored in dedicated envelopes. The surface water samples were preserved with nitric acid. Upon completion of a sampling event, samples were sealed in their container, labeled, and sample information was recorded in one of the site log books. Duplicate and spiked sample analyses were conducted with each of the sample delivery groups. The results of these analyses are contained in the data validation reports (Appendix C). The background samples were compared with the data produced from sample analysis of potentially contaminated locations. Sample CC-SW-02, obtained upstream in the Arkansas River, provides the background for the surface water samples. Sample CC-SE-02 is the background sample for most of the soil and sediment samples and was obtained from a drainage ditch upstream from the site. The other sample used for sediment background levels was CC-SE-16, which was obtained from upstream in the Arkansas River. CC-SE-02 was used for background levels because the samples originally planned to be used as the soil background samples were more contaminated than anticipated. The background samples for the air sampling varied on a daily basis and were determined based on the predominant wind direction over the previous 24-hour sampling period.

After collection, all samples were handled by rigidly following chain-of-custody protocol prescribed by the *NEIC Procedures Manual for the Evidence Audit of Enforcement Investigations by Contractor Evidence Audit Teams*, April, 1984 and *NEIC Procedures Manual for the Contract Evidence Audit and Litigation Support for EPA Enforcement Case Development*, February, 1989.

5.0 WASTE/SOURCE CHARACTERISTICS

5.1 Waste/Source Description

The College of the Canyons Smelter site consists of approximately 60 acres of land. The waste consists of tailings piles and contaminated soil distributed randomly over the site. Based on field observations and historical data, the tailings were expected to have elevated levels of various metals, and in particular, lead and zinc. The Eagle Mine, from which the ore was transported, is also known to have a high sulfur content, which was substantiated by the presence of pyrite in the tailings.

5.2 Sample Locations

To characterize the waste, soil samples were collected extensively over the site. Fifty-five soil samples were collected, 50 of which were surface samples, and five of which were subsurface samples taken from a depth of 18 inches bgs. As Figures 2 and 3 show, samples were collected from tailings piles, near building structures, and in areas that appeared to be uncontaminated. Samples CC-SO-01 (CC-XRF-030) and CC-SO-02 (CC-XRF-029) were collected as background samples, but analyses of these samples indicated unnaturally high levels of metals. Consequently, sample CC-SE-02, which was collected from a drainage ditch near the site, was used to establish the background levels for the waste source soil samples.

The majority of the samples sent to the laboratory for analysis were obtained from tailings piles. A pile, as defined by the Hazard Ranking System, is characterized by the periodic addition of waste to stacks that results in one large pile. In contrast to the samples from tailings piles, samples CC-SO-01, CC-SO-02, and CC-SO-05 were obtained from contaminated soil. Contaminated soil differs from piles in that an area of contaminated soil was not intended to serve as a waste management area. Samples CC-SO-01 and CC-SO-02 were intended to serve as background samples and hence were obtained from areas free of tailings. Sample CC-SO-05 was obtained from beyond the site boundary, and thus may constitute an area not intended for the disposal of tailings.

5.3 Analytical Results

There are two sets of analytical results for the soil/source samples collected. The first set of results consists of the screening data obtained via the Spectrace XRF instrument, while the second set of results consists of the data obtained from the laboratory under QA level II criteria. The XRF results are presented in Table 2 and Appendix E, and the laboratory confirmation results are presented in Table 3. Appendix E provides the XRF raw data, and Table 2 gives the "qualified" results for zinc and lead.

To determine the precision and accuracy of the XRF analyses, a statistical analysis was conducted (accuracy represents how close the average value of all the measurements comes to the true value, while precision represents how close in value all of the measurements are to each other). In calculating the percent recoveries presented in Table 4, the laboratory analysis was assumed to be the true value. The statistics presented in Table 5 are categorized into different level ranges to reflect instrument behavior; the XRF is expected to produce measurements with greater accuracy over certain ranges. For instance, the percent recovery of lead from 100 to 1,000 parts per million (ppm) and from 1,000 to 10,000 ppm were 81% and 69%, respectively. Thus, the analyses of lead from 100 to 1,000 ppm are more accurate.

The precision of the analyses can be judged from the standard deviation values. From the standard deviation, the analyses for lead above the level of 10,000 ppm are judged to be the most precise. The standard deviation can also be used to give confidence intervals. The first confidence interval (i.e., ± the standard deviation from the average) represents the 68.3% confidence interval. In other words, 68.3% of all the XRF measurements for lead in the range of 1,000 to 10,000 ppm can be expected to have percent recoveries between 52% and 86%. The second confidence interval (i.e., ± two times the standard deviation from the average) represents the 95.4% confidence interval. Thus, 95.4% of the measurements for lead in the range of 1,000 to 10,000 ppm can be expected to have percent recoveries between 35% and 103%.

The bias of the samples (i.e., high or low) can be corrected by using the value given in the multiplier column in Table 5. Lead values that were greater than 10,000 ppm only had an average percent recovery of 54%, which is indicative of a low bias on the XRF

measurements. To gain a value that may better reflect the true value, any XRF lead result over 10,000 ppm can be multiplied by 1.85 to *estimate* the true value of lead in the soil. For instance, the XRF analysis of sample CC-XRF-025 yielded a result of 12,000 ppm. Based upon the low bias indicated by the confirmation samples, the true level of lead in CC-XRF-025 is expected to be closer to 22,000 ppm (12,000 x 1.85 = 22,200).

The analyses (both laboratory and XRF) indicate extensive levels of lead in the soil and waste sources on site. The background level of lead for the site was established for the laboratory samples by sample CC-SE-02 at a level of 11 ppm and for the XRF samples by sample CC-XRF-139 at 78 ppm. If contamination is considered to have occurred when levels are observed to be three times above the background level, then all 14 of the laboratory samples and all 55 of the XRF samples indicate the presence of contamination. Typical contamination levels of lead are on the order of 5,000 to 10,000 ppm, while the highest level of contamination observed was approximately 100,000 ppm (10%).

Similar results were obtained for zinc. Using samples CC-SE-02 and CC-XRF-139 as background samples, zinc background levels of 14 and 86 ppm were obtained, respectively. All 14 laboratory samples and all 55 XRF samples were subsequently found to contain more than three times the background level of zinc. Typical zinc levels were commonly greater than 1,000 ppm. A few samples exceeded 10,000 ppm.

The contamination from cadmium and arsenic is extensive, but not of as large a magnitude as lead or zinc. The XRF measurements of cadmium, and in particular arsenic, are not as reliable as they are for lead and zinc. Consequently, only the laboratory samples were used to characterize the waste source. Using CC-SE-02 as the background sample, the background levels of arsenic and cadmium were found to be 0.9 and 1.1 ppm, respectively. All 14 laboratory samples indicated contamination levels for both cadmium and arsenic. Levels for arsenic and cadmium were typically less than 200 ppm, but both elements had samples in which their levels eclipsed 1,000 ppm.

For mercury, because all results lie at the detection level of the XRF instrument, the XRF results are unreliable. The laboratory analyses, with CC-SE-02 as the background sample, indicate the presence of mercury in 13 of the 14 samples. Levels of mercury were usually below 1 ppm; the highest levels observed were 3.4 ppm and 4.8 ppm.

Due to the nature of the source, other elements occur at elevated levels in some samples. These elements include antimony, manganese, vanadium, cobalt, copper, nickel, and chromium. The extent to which these elements occur, however, is limited, although several samples do indicate substantial contamination at levels greater than 1,000 ppm. Metals occurring at levels exceeding 1,000 ppm are manganese (CC-SO-07, CC-SO-10, CC-SO-11, CC-SO-12, and CC-SO-13), copper (CC-SO-06, CC-SO-09, CC-SO-10, and CC-SO-11) and nickel (CC-SO-06 and CC-SO-09).

Subsurface samples CC-XRF-041 through CC-XRF-045 were taken from tailings piles at a depth of 18 inches bgs. The four laboratory splits were samples CC-SO-10 through CC-SO-13. The subsurface samples are not noticeably distinguishable from the surface samples. Nearly all the metals previously mentioned as being present at contamination levels in the surface samples are also present at contamination levels in at least one of the four subsurface samples. The only metal present at less than three times the background level in all of the subsurface samples is chromium.

5.4 Conclusions

The waste source is 60 acres of tailings piles and contaminated soil that possess elevated levels of various heavy metals. Because the tailings piles are unevenly distributed over the site, a wide variation in levels of metals is observed. There are eight metals for which a regulatory level has been established by which a substance exhibits the characteristic of toxicity (40 CFR 261.24). The eight metals, and their regulatory levels (in mg/L or ppm) are arsenic (5.0), barium (100.0), cadmium (1.0), chromium (5.0), lead (5.0), mercury (0.2), selenium (1.0), and silver (5.0). Several additional metals possessed high bioaccumulation and ecotoxicity factors as detailed by the Superfund Chemical Data Matrix (SCDM). Metals that should also be considered are beryllium, copper, thallium, and zinc. Of the twelve metals referenced above, lead and zinc are the only metals that are both consistently present in the soil samples and at relatively high levels. Cadmium, arsenic, and mercury are also present in some samples, but they are not as widespread nor do they occur at the same level of magnitude as lead and zinc. Iron is present at relatively high levels, but is not addressed specifically by the toxicity characteristic criterium or is of major concern in the Hazard Ranking System. Several other elements (antimony, copper,

cobalt, manganese, nickel, and chromium) are occasionally present at elevated, but usually low, levels.

6.0 SURFACE WATER PATHWAY

6.1 Hydrology

The College of the Canyons Smelter site is located approximately 1.5 miles south of the Arkansas River. Surface run-off from the site can enter one of three drainage ditches. The three ditches join Forked Gulch which then flows northward to eventually join the Arkansas River. The three ditches near the site are intermittently dry and appear to contain flow only as a result of rainfall or melting snow. As alluded to when discussing the ground water pathway, water can be observed seeping into Forked Gulch. Even during dry periods, Forked Gulch contains water as it approaches the Arkansas River.

6.2 Targets

Although wetlands are not mapped along the drainage that leads to the Arkansas River, there are small areas that could be classified as wetlands in accordance with federal guidelines (as discussed previously in section 4.1.7). The Arkansas River below the 1st Street Bridge to Pueblo Reservoir is designated by the Colorado Department of Health and Environment, Water Quality Control Section as Class I Primary Contact Recreation, Class I Cold Water Aquatic Life, suitable for agricultural use, and as a domestic water supply. The City of Florence, located approximately 11 miles downstream from the site, receives 50% of its 2 million gallon-per-day water supply from the Arkansas River. Between Canon City and Florence, the Arkansas River has a relatively confined channel with cobble substrate that is recognized as an excellent cold water fishery. Species of special concern to the Colorado Division of Wildlife (CDOW) that inhabit this portion of the river are the red-bellied dace and the brown trout. Below Florence, the Arkansas River channel broadens and is characterized by a "transition zone" fishery containing diverse species and large numbers of fish. Bald Eagles are common to the Arkansas River below Canon City primarily during the winter months when the birds gather in large numbers in the Swallows area above Pueblo Reservoir. These wintering eagles may feed upstream as far as Canon City. This may also be true of resident osprey and great blue herons, which inhabit the

Swallows area. The Swallows area is on the Arkansas River approximately 30 miles downstream from the site.

6.3 Sample Locations

To determine whether a release from the waste source had occurred via the surface water pathway, two types of samples were collected. The first group of samples were surface water samples that were collected concurrently with rainfall; the second group of samples were sediment samples. Samples were collected primarily from Forked Gulch, but some samples were also collected from the run-off ditches just north of the site and from the confluence of Forked Gulch and the Arkansas River.

6.4 Analytical Results

6.4.1 Aqueous Samples

Nineteen surface water samples were gathered to determine whether a release to the surface water pathway had occurred. The results are provided in Table 6. The sample that serves as the background sample is CC-SW-02. Sample CC-SW-02 was taken in the Arkansas River, upstream from where Forked Gulch joins the Arkansas River. Sample CC-SW-02 is the blank for all the surface water samples because flowing water was not available from any of the three ditches upstream from the site.

Sample CC-SW-01 was collected downstream from the confluence of Forked Gulch and the Arkansas River. Laboratory results indicate that a release into the Arkansas River is not occurring for any of the metals on the target analyte list, except for possibly lead. The release of lead into the Arkansas River can be neither confirmed nor denied. The uncertainty arises because lead analysis failed QA/QC criteria. Lead failed its spiked sample recovery at 62% (see the quality assurance reports, Appendix C). In the worst case scenario, the background sample CC-SW-02, which was determined to be 3.0 μg/L, could actually be closer to 5 μg/L if the low bias is corrected. If the analysis of the background sample experienced a low bias, but the analysis of the downstream sample was accurate, then the downstream sample would be less than three times the background sample; however, if the background sample analysis was accurate and if the downstream

sample experienced a low bias, then by definition a release did occur. Due to the failure of the QA/QC criteria, however, a release of lead into the Arkansas from the site cannot be addressed with a fair degree of certainty. Sample CC-SW-03, which was collected from Forked Gulch just before the confluence of Forked Gulch and the Arkansas River, did indicate the release of lead.

Releases of lead from the site to the surface waters of Forked Gulch have occurred, although there is a large variability in lead concentrations from sample location to sample location. The lowest concentration of lead along Forked Gulch occurred from the ground water seeps and from the "sewer" water influent. Because none of these samples exceeded lead levels of 5μg/L, lead concentrations in these samples were less than three times the background level of CC-SW-02. The results of the ground water seep samples indicate that the ground water is not contaminated or that metals are not efficiently transported by the groundwater. Sample concentrations of lead for the remaining samples were usually above 50 μg/L; three samples exceeded 3,000 μg/L.

The three other metals on the toxicity characteristic list (40 CFR 261.24) that were identified at the site were cadmium, arsenic, and mercury. Mercury was not detected in any of the surface water samples. Cadmium and arsenic were identified at high concentrations in several of the samples, including samples CC-SW-16, CC-SW-17, CC-SW-18, and CC-SW-19. The concentrations in these samples ranged from 4,000 μg/L to 18,000 μg/L for cadmium, and from 3,000 μg/L to 40,000 μg/L for arsenic. The locations of the four samples are within a short distance of the site; for samples located farther from the site along Forked Gulch, the concentrations of arsenic and cadmium decrease substantially. All of the sample concentrations for cadmium and arsenic fell below 100 μg/L along Forked Gulch. Several cadmium concentrations were below the instrument detection limit of 5 μg/L.

Copper and zinc are metals for which releases occurred and are important in the Hazard Ranking System but not addressed by the toxicity characteristic list. Copper has high bioaccumulation and ecotoxicity factors, and zinc has a high bioaccumulation factor and a relatively small ecotoxicity factor. Zinc was observed as a release in nearly 75% of the samples; copper was observed as a release in approximately 50% of the samples. High

concentrations of zinc and copper were observed in samples CC-SW-16 through CC-SW-19.

The four samples referenced above, CC-SW-16 through CC-SW-19, also showed elevated concentrations of the following elements: antimony, chromium, cobalt, manganese, nickel, and vanadium. Two of these elements, cobalt and vanadium, were not identified in the earlier description of the waste source. An explanation for the elevated concentrations of the metals in these surface water samples is that the pH of these water samples was extremely acidic (pH 2). Acidic water is capable of leaching metals from the soils, and because the flow of water is intermittent at the points where the samples were collected, the metals can be concentrated due to cycles of leaching and drying. At sampling points further down along Forked Gulch, the concentrations of most of the analytes are sufficiently high to indicate a release, although their concentrations have been greatly reduced.

6.4.2 Sediment Samples

The second method by which a release via the surface water pathway is possible was investigated by analysis of sediment samples. The results for the sediment samples are provided in Tables 7 and 8, and in Appendix E. Sample CC-SE-16 was collected upstream of the confluence of Forked Gulch and the Arkansas River, and serves as the background sample. Based upon the analysis of CC-SE-16, sample CC-SE-15, which was collected downstream from the junction, does not indicate a release from the site to the Arkansas River. Sample CC-SE-14, which was collected in Forked Gulch near the confluence of Forked Gulch and the Arkansas River, did indicate the release of metals to Forked Gulch. Samples CC-SE-02 serves as the background sample for sample CC-SE-14. The elements that were higher than three times the background levels for sample CC-SE-14 were arsenic, chromium, copper, iron, lead, manganese, nickel, and zinc.

Of the remaining samples, samples CC-SE-03 through CC-SE-13 indicate a release of metals from the site (sample CC-SE-01 may be considered a "dirty" background sample). Based on background sample CC-SE-02, a release of lead and arsenic occurred for samples CC-SE-03 through CC-SE-13. The highest levels of lead and arsenic in CC-SE-05 were 11,400 ppm and 330 ppm, respectively. The release of cadmium was confirmed for all

of the samples except CC-SE-10. Mercury was found at levels three times above the background in samples CC-SE-04, CC-SE-05, and CC-SE-09. Other metals of significance for which a release can be confirmed are antimony, cobalt, chromium, copper, iron, manganese, nickel, vanadium, and zinc. The release was relatively large for iron and zinc.

6.5 Conclusions

Two targets were identified for the surface water pathway: the Arkansas River and the wetlands along Forked Gulch. Releases were confirmed for Forked Gulch, but could not be substantiated for the Arkansas River, although metals from sediment and surface water are probably entering the river. Samples CC-SW-03 and CC-SE-14, located just before the confluence of Forked Gulch and the Arkansas River, indicate levels of metals that are three times above their respective background levels. Metals on the toxicity characteristic list or of importance to the Hazard Ranking System that were released to Forked Gulch are lead, cadmium, arsenic, zinc, and copper.

A release to the Arkansas River could not be substantiated because the large flow of the Arkansas River efficiently disperses or dilutes the contaminants entering from Forked Gulch. Due to high metal concentrations in source materials, the acidic nature of run-off, and documented releases to Forked Gulch, additional sediment sampling in the Arkansas River is recommended to assure that this target is not being impacted by the site. It is also recommended that additional water samples be collected from the Arkansas River. The failure of laboratory QA/QC criteria for lead analysis precluded a definitive conclusion regarding a release to the Arkansas River.

The impacted surface water pathway from the site to the Arkansas River is approximately 9,500 feet, or 1.8 miles. Based on the Hazard Ranking System, the amount of impacted wetlands along a surface body of water is determined by the wetlands frontage to the body of water (Section 4.1.4.3.1.1). Consequently, 19,000 feet or 3.6 miles of wetlands frontage could exist. Based on field observations, however, considerably less than 3.6 miles of frontage wetlands exists. A conservative measurement of the amount of wetlands frontage along Forked Gulch is 0.1 to 1.0 miles.

7.0 SOIL EXPOSURE AND AIR PATHWAYS

7.1 Physical Conditions

The 60 acres of tailings piles and contaminated soil are essentially barren, as little or no vegetative cover exists at the site. In addition, the tailings piles and contaminated soil are fine-grained and would appear to be susceptible to air borne migration from the site. Dusty conditions, however, have not been noted on recent visits to the site. The lack of dust may be attributed to the ability of the soil and tailings to form a hard crust that may prevent the formation of dust. On visits to the site in 1991, the TAT did observe dusty conditions; however, at that time a fertilizer company was actively conducting business, and the vehicle traffic and the business operation probably prevented the formation of hard crust and enhanced the formation of dust. Thus, although dusty conditions may not currently exist, they could easily recur.

Drainage ditches collect runoff from the site, but usually remain dry due to a lack of moisture. The College of the Canyons Smelter site is located in a semiarid climate zone. The mean annual precipitation is approximately 19 inches. The calculated net annual precipitation (mean precipitation less evapotranspiration) is 5.5 inches (Delaware 1986). The 2-year, 24-hour rainfall event is 1.5 inches (Dunne and Leopold 1978).

7.2 Soil and Air Targets

The soil target would primarily consist of people who are trespassing. There are no fences or other barriers restricting access to the site. Although the site is less than 1 mile from the Prospect Heights residential area of Canon City, the area is somewhat isolated by steep and irregular topography. Evidence of some foot traffic through the area exists, but inhabitation of the site or use of the site as a food source by threatened or endangered species is unlikely. With no residences within 1/2 mile of the site, the greatest soil exposure would appear to be associated with unrestricted access by children, pedestrians, and recreational vehicles.

The primary air targets are workers within a 1/2-mile radius and the town of Prospect Heights, which is located within the 1-mile radius. Canon City, Brookside, and Lincoln

Park are within a 4-mile radius of the site. The air target populations are summarized as follows:

Radius	Population
On site	0
0 - 1/4 mile	55 (workers)
1/4 - 1/2 mile	220 (workers)
1/2 - 1 mile	1,000
1 - 2 miles	2,500
2 - 3 miles	5,500
3 - 4 miles	6,000
The above population numbers are from field observation or are estimated based on the following population densities: Canon City: 1,606 people per square mile Brookside: 458 people per square mile Lincoln Park: 981 people per square mile	

7.3 Soil Sample Locations

No soil exposure pathway samples were collected except for the waste source characterization samples discussed in Section 5.0.

7.4 Air Monitoring

7.4.1 Methodology

Eight high volume sampling stations were established beyond the site boundary. Hi-vol 1 (HV-1) was located approximately 200 feet east of the site at the College of the Canyons. Hi-vol 2 (HV-2) was located near the Fremont County Business Development Park, approximately 200 feet east of the site boundary. Hi-vol 3 (HV-3) was located near Mariposa Road, approximately 400 feet west of the of the southern portion of the site. Hi-vols 4 (HV-4) and 5 (HV-5) were also located near Mariposa Road, approximately 50 feet north of the western portion of the site. Because HV-4 and HV-5 served as duplicate

samplers, they were placed side by side. Hi-vol 6 (HV-6) was located 1/2 mile northeast of the site at the Colorado State Forest Service shops. Hi-vol 7 (HV-7) was located 1/4 of a mile north of the site at a municipal waste transfer center. Hi-vol 8 (HV-8) was located 1/2 mile west of the site at the auto salvage yard.

Approximately 20 to 30 people work at the Fremont County Business Development Park; there are no more than five employees, respectively, at the Forest Service shops, the municipal waste treatment center, and the auto salvage yard. HV-3, HV-4, and HV-5 were located in areas where businesses are not present.

All air sampling stations were set up at a height of 5 feet in order to sample in the breathing zone. The air sampling stations were located in accordance with the approved sampling plan, with a meteorologic station being set up between hi-vol locations HV-1, HV-4, and HV-5. The wind vane was calibrated to true north. The meteorologic station recorded air temperature, barometric pressure, relative humidity, wind speed, and wind direction. This information was used to correct sampler flow rates and air concentrations to standard temperature and pressure conditions (STP).

The hi vols were calibrated in place using a General Metal Works variable orifice calibrator. Calibration records are included in Table 10. The hi-vols were set to run for 24 hours at approximately 50 cfm, and all were equipped with elapsed timers to record the total sample time and a flow recorder that measured the flow throughout the sample period. Any fluctuations in flow during the sample period would be noted on the recorder disk. The flow recorder also served as a check on the elapsed timers.

7.4.2 Quality Assurance

The air samples were analyzed for metals and total suspended particulates (TSP). The analytical data were found to be of good quality with two exceptions. The TSP results, as explained the quality assurance report (Appendix C), were rejected due to poor precision in the measurements of the filter paper. Before and after the collection of the TSP on the filter paper, each filter paper was weighed a minimum of three times. The standard deviation of the measurements was calculated and determined to be 0.01 grams. The typical mass of the TSP collected during a 24-hour sampling period was on the order of

0.02 to 0.04 grams. Given that the standard deviation was consistently 25% to 50% of the analytical result, the TSP results were rejected.

Because the TSP results failed QA/QC criteria, zinc levels were used to gauge the amount of particulates released from the site. Unfortunately, some of the analyses for zinc failed QA/QC criteria as well. Filter blanks were analyzed with each sample delivery group. In the second sample delivery group, the filter blank produced a zinc concentration that was above the Contract Required Detection Limit (CRDL). Ordinarily, the sample results that are five times below the blank result are reported as undetected. The purpose of the low level zinc samples, however, was not necessarily to prove that a release had occurred, but to serve as relative background levels when determining the magnitude of release from the site. The magnitude of release was calculated by dividing the associated zinc level of the largest lead level by the associated zinc level of the smallest lead (i.e., background) level. If contamination of zinc occurred in all the samples at the same magnitude, or if only the low level samples were contaminated, then the values reported for the magnitude of release are underestimated. The samples may have been contaminated on days four and five.

7.4.3 Analytical Results

Hi-vols were set up on August 15, 1994. Actual operation of the hi-vols began on August 17, 1994, and continued for three days. At the end of the third sampling day, heavy rains began to fall; thus, the remaining two days of sampling were completed on August 23 and 24, after the area had dried out. The results for laboratory analysis of the air filters are included in Table 9.

The formulas used for determining the airborne concentrations are presented in Table 10, which shows the calculations used to determine the total volume of air sampled corrected to standard conditions by each hi-vol on each sampling day. This information was used to determine the average concentration per cubic meter for each of the elements of concern. When combined with wind speed and direction information from Figure 8, off-site migration of the contaminants can be determined.

Review of the analytical data indicate that lead is the only metal present at relatively high levels in the air samples that is both on the toxicity characteristic list (40 CFR 261.24) and of importance to the Hazard Ranking System due to its high toxicity factor as described by SCDM. The other metals on the toxicity characteristic list or of importance to the Hazard Ranking System were either not detected in the air samples or were detected at low levels in a few of the samples (Table 9). The metal in an air sample was only considered to be at elevated levels if it was greater than three times the background level, or if it exceeded the sample quantitation limit, which was used if the background level was below the method detection limit. Levels of lead, copper, zinc, iron, manganese, and aluminum were greater than three times the background level or exceeded the sample quantitation limit in at least one sample; however, of these metals, only lead is on the toxicity characteristic list and has a high toxicity factor. In this study, zinc was used to track and estimate the volume of the release; the values for zinc are only provided for calculating the release. Table 11 lists each day's level of zinc and lead in comparison to the downwind background levels.

Day 1

The sampling period began at 1720 hours on August 16, 1994 with the start up of the hi-vol at location HV-1. The last hi-vol was shut off at approximately 1830 hours on August 17, 1994. The wind rose for this period is shown on Figure 8. The predominant wind flow for this period was from the west-southwest at an average speed of 10.3 mph for 17% of the sample period; winds were from the southwest at an average speed of 8 mph for 26% of the sample period; and the wind was calm for 32% of the sampling period.

HV-1, HV-2 and HV-3 (CC-A-1, CC-A-6 and CC-A-11) were located at the College of the Canyons, the business development park, and at Mariposa Road, respectively, and were downgradient of dominant winds. These hi-vols were located on the edge of the tailings disposal area and had elevated lead levels for this sampling event. HV-1 (CC-A-1), located at the College of the Canyons, had the highest lead level for this sampling event. With the dominant wind from the west-southwest, the source of lead was probably from the smelter stack area. HV-4 and HV-5 (CC-A-16 and CC-A-21) were in the secondary wind direction and located near the red piles (HV-4 and HV-5 were collocated). The wind from the southwest would load these samples. HV-6 (CC-A-26) was also in the secondary wind

direction and located at the Colorado State Forest Service office. The distance from the source area probably accounts for the relatively low lead levels in the sample. Samples HV-7 and HV-8 (CC-A-31 and CC-A-36) were located at the municipal waste transfer facility and at the auto salvage yard, respectively. These hi-vols were in the background, or windward, for this sampling event. Relatively low zinc and lead levels below the detection limit characterized these samples.

Zinc was used as a background indicator metal, as zinc occurred in measurable levels in all the air samples and was present in the background soil sample. The background lead samples for this day were below the detection limit at HV-7 and HV-8 (CC-A-31 and CC-A-36). Elevated lead levels above the detections limits for the background samples were noted in the dominant and secondary wind directions indicating a release had occurred. The highest lead level was 0.072 $\mu g/m^3$ at the College of the Canyons (CC-A-1). Using the zinc values, associated with the highest and lowest lead samples as an indicator of the magnitude, the release was approximately 17 times the background levels (0.204 $\mu g/m^3$ / 0.012 $\mu g/m^3$). HV-6, located approximately one-half mile from the perimeter of the site tailings in the secondary direction, had a lead level of 0.006 $\mu g/m^3$, slightly above the laboratory detection limit (CC-A-26).

Day 2

The sampling period began at 1730 hours on August 17, 1994 with the start up of HV-1. The last hi-vol was shut off at approximately 1840 hours on August 18, 1994. The wind rose for this period is shown on Figure 8. The predominant wind flow for this period was from the west-southwest at an average speed of 8.5 mph for 39% of the sample period; winds were from the southwest at an average speed of 8.8 mph for 34% of the sample period; and the wind was calm for 36% of the sampling period.

HV-1, HV-2 and HV-3 (CC-A-2, CC-A-7 and CC-A-12) were located at the College of the Canyons, the business development park, and at Mariposa Road, respectively, and were downgradient of dominant winds. These hi-vols were located on the edge of the tailings area and had elevated lead levels. HV-3 (CC-A-12), located at Mariposa Road, had the highest lead level for this sampling event. HV-4 and HV-5 (CC-A-17 and CC-A-22) were in the secondary wind direction and located near the red piles (HV-4 and HV-5 are

collocated). The wind from the southwest would affect these samples. HV-6 (CC-A-27) was also in the secondary direction and was located at the Colorado State Forest Service office. The distance from the source area probably accounts for the relatively low lead levels for the sample. HV-7 and HV-8 (CC-A-32 and CC-A-37) were located at the municipal waste transfer facility and at the auto salvage yard, respectively. These hi vols were in the background wind direction for this sampling event. These samples exhibited relatively low zinc and lead levels that were below the detection limit.

Zinc was used as a background indicator metal because it occurred in measurable levels in all the air samples and was present in the background soil sample. The background lead samples for this day were below the detection limit at HV-8 (CC-A-37) and HV-7 (CC-A-32). Elevated lead levels were noted in the dominant and secondary wind directions, indicating an off-site release. The highest lead level was 0.062 $\mu g/m^3$ at the Mariposa Road sampling station (HV-3; CC-A-12). Using the zinc values, associated with the highest and lowest lead samples, as an indicator of the magnitude, the release was approximately 3.5 times the background levels (0.046 $\mu g/m^3$ / 0.013 $\mu g/m^3$). HV-6, located approximately one-half mile from the perimeter of the site tailings in the secondary direction, had a lead level of 0.005 $\mu g/m^3$, slightly above the laboratory detection limit (CC-A-27).

Day 3

The sampling period began at 1745 hours on August 18, 1994 with the start up of HV-1. The last hi-vol was shut off at approximately 1900 hours on August 19, 1994. The wind rose for this period is shown on Figure 8. Erratic and gusty winds characterized the weather pattern for this day's sampling event. Sustained (15 minute average) winds of 12.5 mph were noted. The predominant wind flow for this period was from the southwest at an average speed of 8.6 mph for 24% of the sample period; wind was from the west-southwest at an average speed of 6.7 mph for 28% of the sampling period; and the wind was calm for 26% of the sampling period.

HV-2 and HV-3 (CC-A-8 and CC-A-13) were located at the business development park and at Mariposa Road, respectively, and were downgradient of dominant winds. These hi-vols were located on the edge of the tailings area and had elevated lead levels. Also in the

dominant wind direction were HV-4 and HV-5 (CC-A-18 and CC-A-23) which were located near the red piles (HV-4 and HV-5 are collocated). HV-6 (CC-A-28) was also in the dominant direction and was located at the Colorado State Forest Service office. The distance from the source area probably accounts for the relatively low lead levels noted in the sample. HV-3 (CC-A-13) was located at the Mariposa Road and had the highest lead level for this sampling event. HV-8 (CC-A-38), located at the auto salvage yard, was in the background wind direction for this sampling event. Relatively low zinc and lead levels below the detection limit characterize this sample. The hi-vol at the municipal waste transfer facility, HV-7, had slightly elevated lead and zinc values near the values found for HV-4 and HV-5 (CC-A-18 and CC-A-23). The erratic and gusty winds may account for the loading of this hi-vol.

Zinc was used as a background indicator metal because it occurred in measurable levels in all the air samples and was present in the background soil sample. The background lead sample for this day was below the detection limit at HV-8 (CC-A-38). Elevated lead levels were noted in the dominant and secondary wind directions indicating an off-site release did occur. The highest lead level was 0.044 $\mu g/m^3$ at the Mariposa Road sampling location (HV-3; CC-A-13). Using the zinc values, associated with the highest and lowest lead samples, as an indicator of the magnitude, the release was approximately 2.3 times the background levels (0.040 $\mu g/m^3$ / 0.017 $\mu g/m^3$). HV-6, located approximately one-half mile from the perimeter of the site tailings in the dominant direction, had a lead level below laboratory detection limit (CC-A-27).

Day 4

The sampling period began at 1115 hours on August 23, 1994 with the start up of HV-1. The last hi-vol was shut off at approximately 1215 hours on August 24, 1994. The wind rose for this period is shown on Figure 8. Winds from the northeast and southwest characterized the weather pattern for this day's sampling event. The predominant wind flow for this period was from the northeast at an average speed of 8 mph for 14% of the sample period; winds were from the west-southwest at an average speed of 7 mph for 14% of this sample period; and the wind was calm for 34% of the sampling period.

No hi-vols were downgradient of dominant winds for this day's sampling. HV-1, HV-2 and HV-3 (CC-A-4, CC-A-9 and CC-A-14) were located at the College of the Canyons, the business development park, and at Mariposa Road, respectively, and were in the secondary wind direction. These hi-vols were located on the edge of the tailings area and had elevated lead levels. HV-3 (CC-A-14) had the highest lead level for this sampling event at 0.065 $\mu g/m^3$. In a peripheral wind direction were HV-4 and HV-5 (CC-A-19 and CC-A-24) which were located near the red piles (4 and 5 are collocated). Sample HV-6 (CC-A-29) was also in the peripheral direction and was located at the Colorado State Forest Service office. The distance from the source area probably accounts for the relatively low lead levels noted in the sample. Samples HV-7 and HV-8 (CC-A-34 and CC-A-39) were located at the municipal waste transfer facility and at the auto salvage yard, respectively. These hi-vols were in the background wind direction for this sampling event. These samples exhibited relatively low zinc and lead levels that were below the detection limit.

Zinc was used as a background indicator metal because it occurred in measurable levels in all the air samples and was present in the background soil sample. The background lead samples for this day were below the detection limit at HV-8 (CC-A-39) and HV-7 (CC-A-34). Elevated lead levels were noted in the secondary and peripheral wind directions, indicating that a release off site occurred. The highest lead level was at the Mariposa Road sampling location (HV-3; CC-A-14) at 0.065 $\mu g/m^3$. Using the zinc values, associated with the highest and lowest lead samples as an indicator of the magnitude, the release was approximately 3.3 times the background level (0.079 $\mu g/m^3$ / 0.024 $\mu g/m^3$). HV-6, located approximately one-half mile from the perimeter of the site tailings in the peripheral direction, had a lead level of 0.007 $\mu g/m^3$, slightly above the laboratory detection limit (CC-A-29).

Day 5

The sampling period began at 1120 hours on August 24, 1994 with the start up of HV-1. The last hi-vol was shut off at approximately 1220 hours on August 25, 1994. The wind rose for this period is shown on Figure 8. Strong winds from the east-northeast and southwest characterized the weather pattern for this day's sampling event. The predominant wind flow for this period was from the southwest at an average speed of 12 mph for 28% of the sample period; winds were from the east at an average speed of 14.5

mph for 9% of the sampling period; and the wind was calm for 21% of the sampling period.

HV-2, HV-3, HV-4, HV-5, and HV-6 (CC-A-10, CC-A-15, CC-A-20, CC-A-25, and CC-A-30) were located at the business development park, at Mariposa Road, at the red piles (HV-4 and HV-5 were placed side by side) and at the Forest Service office, respectively, and were downgradient of dominant winds. HV-2, HV-3, HV-4, and HV-5 were located on the edge of the tailings area and had elevated lead levels. HV-6 (CC-A-30) was located at the Colorado State Forest Service office. The distance from the source area probably accounts for the relatively low lead level noted in this sample. HV-3 (CC-A-15) was located at Mariposa Road and had the highest lead level for this sampling event at 0.099 $\mu g/m^3$. HV-7 (CC-A-35), located at the Municipal waste transfer facility, was in the peripheral direction and had a slightly elevated lead level (0.011 $\mu g/m^3$). HV-8 (CC-A-40) was located at the auto salvage yard and was in the secondary wind direction for this sampling event. Because this sample exhibited relatively low zinc and lead levels that were below the detection limit, it was used as a background sample.

Zinc was used as a background indicator metal because it occurred in measurable levels in all the air samples and was present in the background soil sample. The background lead sample for this day was below the detection limit at HV-8 (CC-A-40). Elevated lead levels were noted in the dominant and secondary wind directions indicating an off-site release did occur. The highest lead level was at the Mariposa Road sampling location (HV-3; CC-A-15) at 0.099 $\mu g/m^3$. Using the zinc values, associated with the highest and lowest lead samples, as an indicator of the magnitude, the release was approximately 4.3 times the background levels (0.073 $\mu g/m^3$ / 0.017 $\mu g/m^3$). HV-6, located approximately one-half mile from the perimeter of the site tailings in the dominant direction, had a lead level below laboratory detection limit (CC-A-30).

7.5 Conclusions

The analytical data indicates a release of contaminants via the air migration pathway. The lead released off site exceeded the minimum values detected in the background samples each day. The highest recorded level was 0.099 $\mu g/m^3$ lead, which occurred on the fifth day of sampling. Of the eight high volume stations, five recorded detectable levels of lead

above the sample quantitation limit on all five sampling days; all five stations are within 1/4 mile of the site. The five stations were HV-1 at the College of the Canyons, HV-2 at the Fremont County Business Development Park, HV-3 near Mariposa Road, and duplicate hi-vols HV-4 and HV-5 near the red tailing piles just north of the site. Two of the hi-vols, both of which were within 1/2 mile of the site (Colorado State Forest Service Shops and BFH Transfer Station), recorded detectable levels of lead on some days, but not on others. The target population within 1/4 mile of the site consists of 55 workers; the target population within 1/4 to 1/2 mile of the site consists of 220 workers. The hi-vol located at the Fremont Auto Salvage yard did not detect lead during any sampling period.

8.0 GROUND WATER PATHWAY

8.1 Hydrogeology

Three general types of geologic formations underlie the College of the Canyons Smelter site. The uppermost formation consists of quaternary alluvium, which possesses a hydraulic conductivity near 0.01 cm/sec. The quaternary alluvium is underlain by several sandstone formations, each with a hydraulic conductivity of approximately 10^{-4} cm/sec. Pierre shale, with a hydraulic conductivity of 10^{-6} cm/sec, underlies the alluvial and sandstone formations. Data from the U.S. Geological Survey (USGS) indicate the alluvial deposits at the site are shallow, with the bedrock (Pierre shale) becoming exposed as the Arkansas River is approached from the south. Shallow ground water from the area of the site would likely flow north/northeast towards the Arkansas River and emerge where the bedrock is exposed. During a reconnaissance survey of Forked Gulch and during the collection of the samples, ground water was observed seeping into Forked Gulch. The observation supports data indicating the water table is shallow, and becomes increasingly shallower as one travels north from the site toward the Arkansas River.

8.2 Targets

The associated target for ground water are the wells used for domestic drinking water. Due to the availability of municipal drinking water in the areas north, south, and east of the site, domestic wells do not represent a viable target. Water was observed to have been seeping from the ground along various spots of Forked Gulch. Any water seeping

from the ground is potentially ground water that is transporting contaminants from the site to the surface water pathway of Forked Gulch.

8.3 Analytical Results

Samples from ground water wells were not obtained, but the water analyses of the ground water seeps were relatively free of the eight metals present on the toxicity characteristic list.

8.4 Conclusions

Ground water samples were not collected for two reasons. First, the only domestic well that could be affected by ground water contamination has not been used since 1985 (as stated by the owner). The second reason ground water was not sampled is that the ground water is believed to be shallow and moving in a predominantly horizontal direction due to the sloping topography of the area. The topography slopes to the north/northeast and towards Forked Gulch and the Arkansas River. Shallow groundwater moving in a predominantly horizontal direction is consistent with the observation of ground water seeping into Forked Gulch.

9.0 SUMMARY AND CONCLUSIONS

The College of the Canyons Smelter site near Canon City, Colorado was the location of the New Jersey Zinc Company's smelter, an operation that processed ore from the Eagle Mine of Gilpin County, Colorado. The smelter operated from 1902 to 1968; all operations associated with the site were terminated in 1991. The site consists of approximately 60 acres, the majority of which is covered with tailings piles. The remainder of the site consists of contaminated soil. Metals on the toxicity characteristic list that are associated with site waste sources are lead, arsenic, mercury, and cadmium.

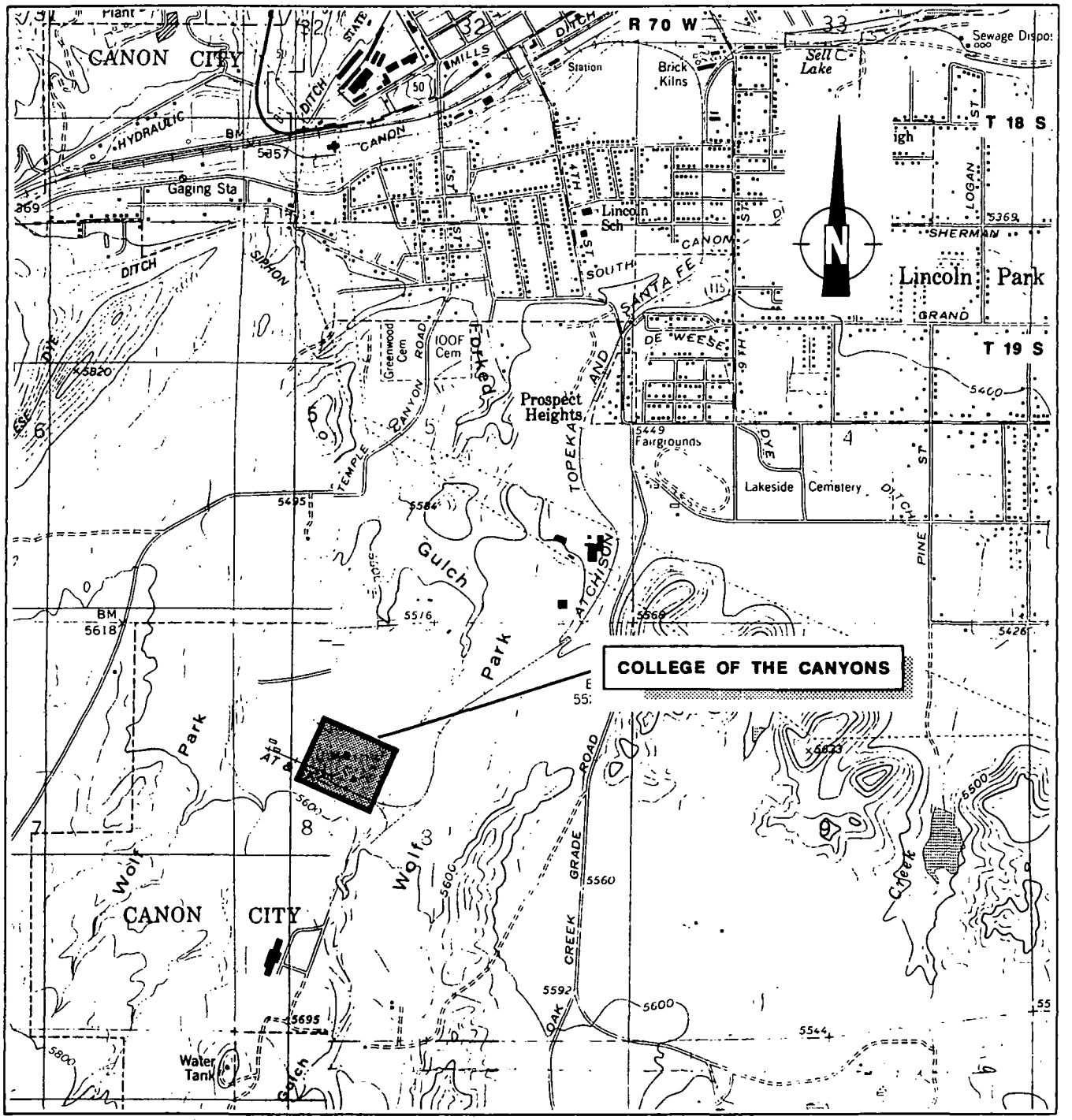
Off-site releases were observed for the surface water pathway. Releases to the surface water pathway were confirmed only for Forked Gulch and its associated tributaries. Elemental concentrations were three times above their respective background levels for lead, arsenic, cadmium, copper, and zinc in various surface water samples, and for lead,

arsenic, cadmium, mercury, copper, and zinc in various sediment samples. Other metals that were released, but which are not on the toxicity characteristic list, are not of importance to the Hazard Ranking System, or were not present at relatively high concentrations, are antimony, cobalt, chromium, iron, manganese, nickel, and vanadium. The length of the affected surface water pathway is 1.8 miles. There is approximately 0.1 to 1.0 mile of wetlands frontage along this pathway.

A release into the Arkansas River could not be established based on the surface water and sediment sample results; however, analytical results of samples collected from near the confluence of the Arkansas River and Forked Gulch indicate the probability that metals are entering the Arkansas River. Due to the flow of the Arkansas River, metal-laden sediments are dispersed and contaminated water is diluted. Additional sediment and water sampling in the Arkansas River are recommended.

The high volume sampling indicated a release of lead is occurring via the air pathway. For each of the five sampling periods, lead releases were confirmed at the Fremont County Business Development Park and at the College of the Canyons, both of which are within 1/4 mile of the site. However, the extent of lead migration via the air pathway is apparently limited. The hi-vols located at the BFH Transfer Station and the Colorado State Forest Service shops, both located within 1/2 mile of the site, confirmed the presence of lead on only two sampling days, and one sampling day, respectively. The hi-vol at the Fremont Auto Salvage yard did not detect lead on any sampling day, further indicating that lead migrating through the air is both limited and dependent on the direction of the prevailing winds. The target population within a zero to 1/4-mile radius of the site consists of 55 workers; the target population within a 1/4 to 1/2-mile radius of the site is 220 workers.

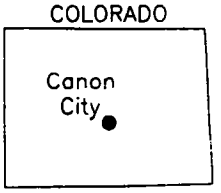
Due to the availability of a municipal drinking water supply, contamination of the ground water is insignificant with respect to potential targets, i.e., drinking water wells. In addition, samples collected from ground water seeps along Forked Gulch were free of contamination.



Source: Canon City Quadrangle, Colorado. USGS, 1976

0 1/2 1 MILE

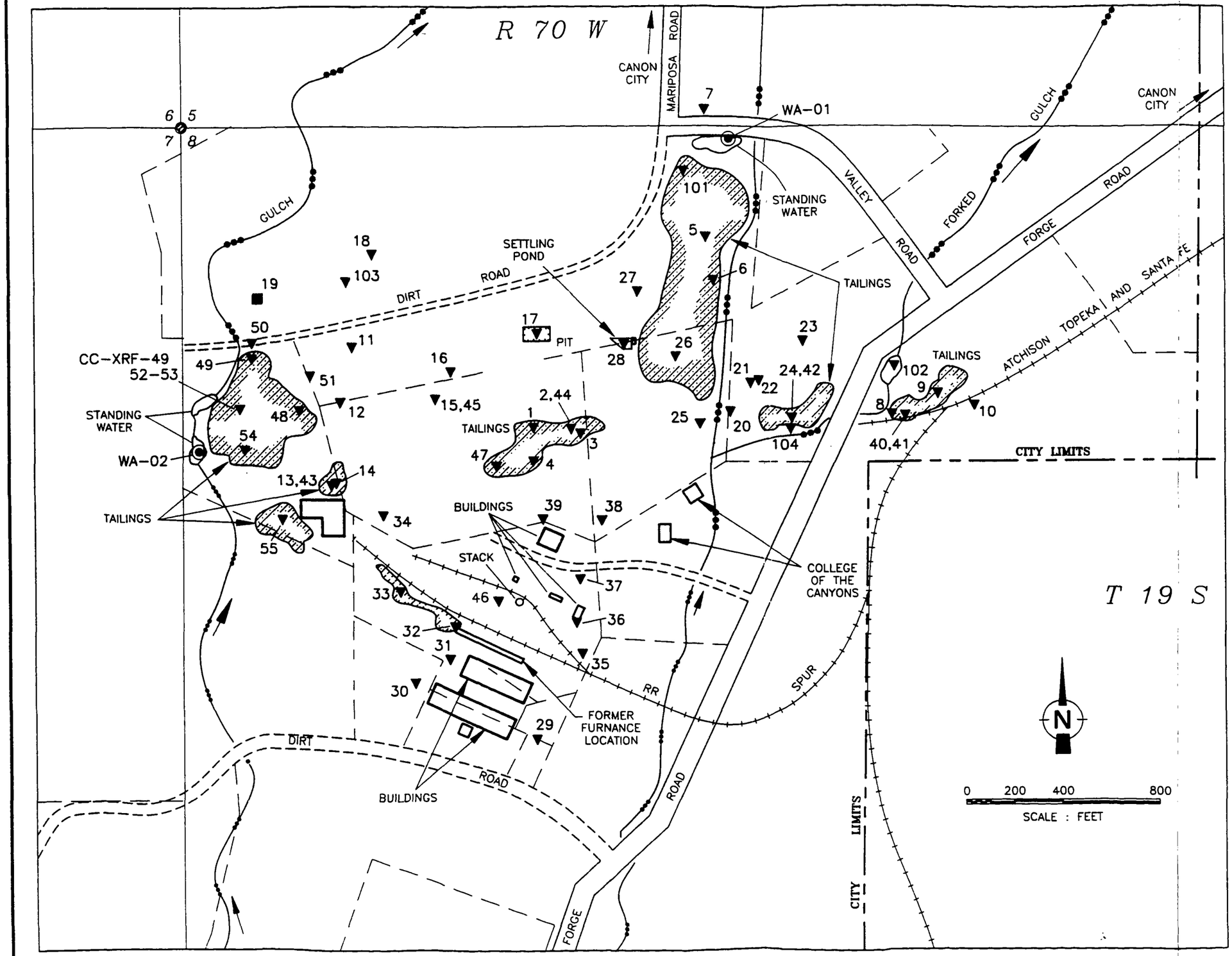
LOCATION MAP
COLORADO



LEGEND

Site location

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION EPA CONTRACT 68-W0-0037
TITLE: COLLEGE OF THE CANYONS Canon City, Colorado SITE LOCATION MAP T.D.D. T08-9406-0501 ZTCOLCAN
ecology & environment, inc. DENVER, COLORADO — FIG. 1
Date: 07/06/94 Drawn by: RSM Scale:



TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-W0-0037

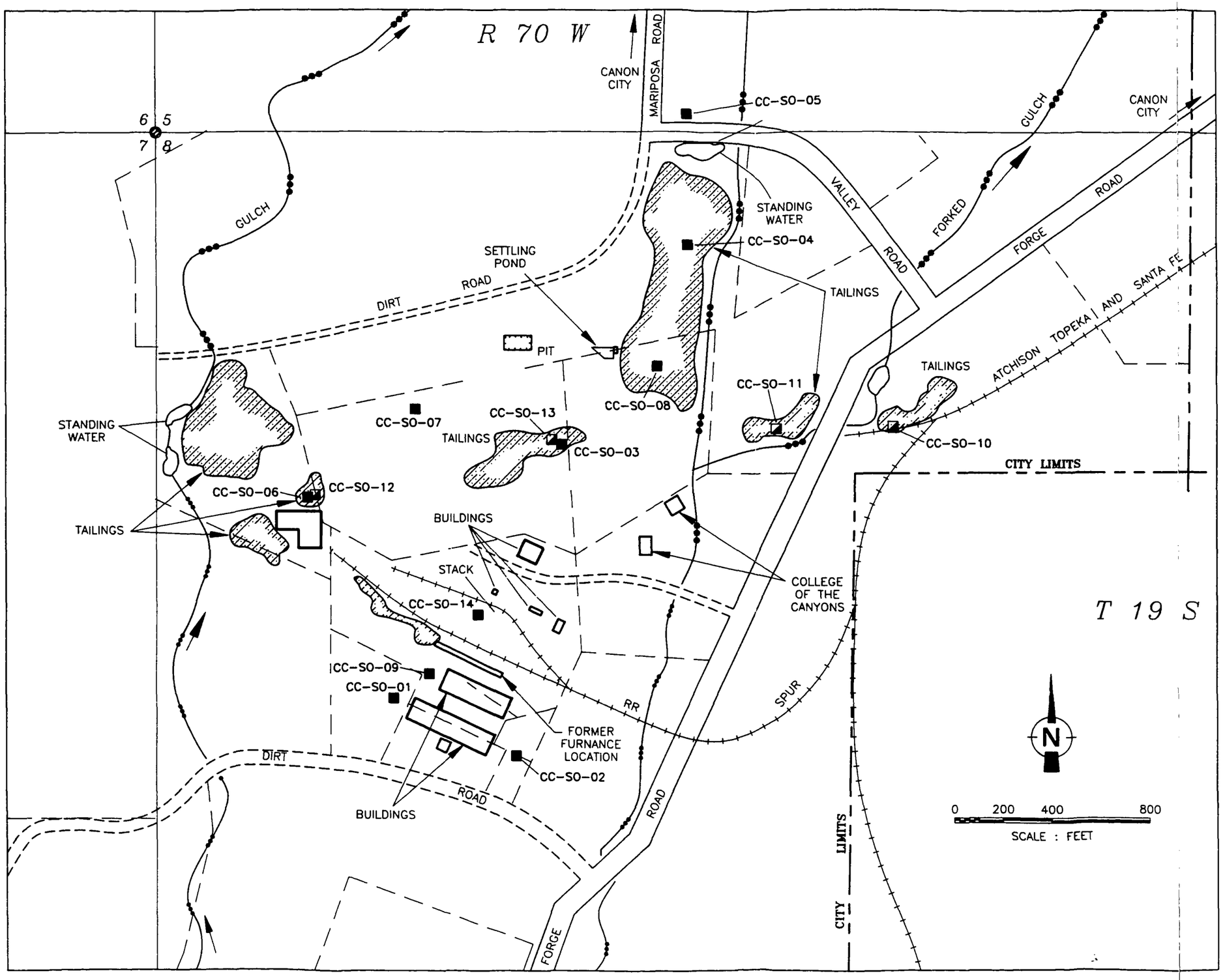
TITLE:
COLLEGE OF THE CANYONS
Canon City, Colorado
SOIL XRF SAMPLE LOCATION MAP

T.D.D. T08-9406-0501 ZTCOLC10

ecology & environment, inc.
DENVER, COLORADO

FIG. 2

Date: 09/13/94 Drawn by: RSM Scale:



TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0037

TITLE:
COLLEGE OF THE CANYONS
Canon City, Colorado
SOIL HSL METALS SAMPLE LOCATION MAP

T.D.D. T08-9406-0501 ZTCOLC10

ecology & environment, inc.
DENVER, COLORADO

FIG. 3

Date: 09/13/94 Drawn by: RSM Scale:

CANON CITY

PONDS

RIVER STREET

D&RG WESTERN RR

RIVER

ARKANSAS

GAGING STATION

CC-SW-01

CC-SW-03

CC-SW-02

CC-SW-04

CC-SW-05

4TH STREET

POND

GREENWOOD CEMETERY

CC-SW-06

CC-SW-07

CC-SW-08

CC-SW-09

CC-SW-10

ROAD

CC-SW-11

CC-SW-12

FAIRGROUNDS

COLORADO STATE FOREST SERVICE

ROYAL GORGE FABRICATORS

INDIAN SPRINGS AUTO SALVAGE

CANYON

TEMPLE

CC-SW-13

CC-SW-14

PORTEC

CC-SW-15

ABANDONED

ESCOD INDUSTRIES

COLTEC ELECTRONICS (ABANDONED)

FREMONT COUNTY BUSINESS DEVELOPMENT

GRAVES ELECTRIC

DTS INDUSTRIES

CC-SW-16

CC-SW-18

FREMONT AUTO SALVAGE

TEZAK RECYCLING

SOUTHWESTERN MOVING AND STORAGE

CC-SW-17

CC-SW-19

ATCHISON TOPEKA AND SANTA FE

SITE BOUNDARY

GULCH

GRADE ROAD

OAK CREEK

PORTEC

FORKED

N

0 1000 2000 3000

SCALE : FEET

● Surface water sample location

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION EPA CONTRACT 68-WO-0037	
TITLE: COLLEGE OF THE CANYONS Canon City, Colorado SURFACE WATER SAMPLE LOCATION MAP	
T.D.D. T08-9406-0501	ZTCOLCA5
ecology & environment, inc. DENVER, COLORADO	FIG. 4
Date: 08/12/94 Drawn by: RSM Scale:	

CANON CITY
PONDS
RIVER
STREET
D&RG WESTERN RR
RIVER
ARKANSAS
GAGING STATION
111
113
112
4TH
115
114
STREET
POND
GREENWOOD CEMETERY
116
117
118
119
120
122
121
ROAD
123
FAIRGROUNDS
COLORADO STATE FOREST SERVICE
124
ROYAL GORGE FABRICATORS
INDIAN SPRINGS AUTO SALVAGE
CANYON
126
125
TEMPLE
130
PORTEC
129
ABANDONED
133
127
134
ESCOD INDUSTRIES
131
COLTEC ELECTRONICS (ABANDONED)
FREMONT COUNTY BUSINESS DEVELOPMENT
GRAVES ELECTRIC
DTS INDUSTRIES
128
FREMONT AUTO SALVAGE
135
140
TEZAK RECYCLING
136
SOUTHWESTERN MOVING AND STORAGE
ATCHISON TOPEKA AND SANTA FE
138
SITE BOUNDARY
137
GULCH
139
GRADE ROAD
OAK CREEK
PORTEC
FORKED
N

0 1000 2000 3000
SCALE : FEET

▼ Sediment XRF sample location

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0037

TITLE:
COLLEGE OF THE CANYONS
Canon City, Colorado
SEDIMENT XRF SAMPLE LOCATION MAP

T.D.D. T08-9406-0501 ZTCOLCA5

ecology & environment, inc.
DENVER, COLORADO

FIG. 5

Date: _____ Drawn by: RSM Scale: _____

CANON CITY
PONDS
RIVER
STREET
D&RG WESTERN RR
ARKANSAS
GAGING STATION
RIVER
CC-SE-15
CC-SE-14
CC-SE-16
CC-SE-13
4TH
STREET
POND
GREENWOOD CEMETERY
CC-SE-12
ROAD
CC-SE-11
CC-SE-10
COLORADO STATE FOREST SERVICE
FAIRGROUNDS
INDIAN SPRINGS AUTO SALVAGE
CANYON
TEMPLE
CC-SE-09
CC-SE-06
CC-SE-04
ROYAL GORGE FABRICATORS
PORTEC
ABANDONED
CC-SE-08
ESCOD INDUSTRIES
CC-SE-05
COLTEC ELECTRONICS (ABANDONED)
GRAVES ELECTRIC
DTS INDUSTRIES
FREMONT COUNTY BUSINESS DEVELOPMENT
FREMONT AUTO SALVAGE
CC-SE-03
TEZAK RECYCLING
SOUTHWESTERN MOVING AND STORAGE
CC-SE-07
ATCHISON TOPEKA AND SANTA FE
SITE BOUNDARY
CC-SE-01
CC-SE-02
GULCH
GRADE ROAD
OAK CREEK
N
PORTEC
FORKED

0 1000 2000 3000

SCALE : FEET

▲ Sediment HSL metals sample location

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-W0-0037

TITLE:
COLLEGE OF THE CANYONS
Canon City, Colorado
SEDIMENT HSL METALS
SAMPLE LOCATION MAP

T.D.D. T08-9406-0501 ZTCOLCA5

ecology & environment, inc.
DENVER, COLORADO

FIG. 6

Date: _____ Drawn by: RSM Scale: _____

CANON CITY

PONDS

RIVER STREET

D&RG WESTERN RR

RIVER

ARKANSAS

GAGING STATION

4TH STREET

POND

GREENWOOD CEMETERY

ROAD

FAIRGROUNDS

INDIAN SPRINGS AUTO SALVAGE

CANYON

TEMPLE

COLORADO STATE FOREST SERVICE

ROYAL GORGE FABRICATORS

PORTEC

HV-7
CC-A-31
Thru
CC-A-35

ABANDONED

HV-6
CC-A-26
Thru
CC-A-30

ESCOD INDUSTRIES

COLTEC ELECTRONICS (ABANDONED)

GRAVES ELECTRIC

DTS INDUSTRIES

HV-4
CC-A-16
Thru
CC-A-20

FREMONT COUNTY BUSINESS DEVELOPMENT

HV-3
CC-A-11
Thru
CC-A-15

FREMONT AUTO SALVAGE

HV-5
CC-A-21
Thru
CC-A-25

TEZAK RECYCLING

SOUTHWESTERN MOVING AND STORAGE

HV-8
CC-A-36
Thru
CC-A-40

ATCHISON TOPEKA AND SANTA FE

HV-2
CC-A-06
Thru
CC-A-10

SITE BOUNDARY

HV-1
CC-A-01
Thru
CC-A-05

GULCH

GRADE ROAD

OAK CREEK

PORTEC

FORKED

N

0 1000 2000 3000

SCALE : FEET

LEGEND

Air sample location

Met. station

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-W0-0037

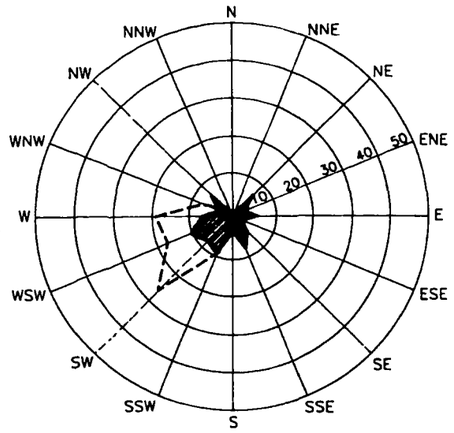
TITLE:
COLLEGE OF THE CANYONS
Canon City, Colorado
AIR SAMPLE LOCATION MAP

T.D.D. T08-9410-014 ZTCOLCA5

ecology & environment, inc.
DENVER, COLORADO

FIG. 7

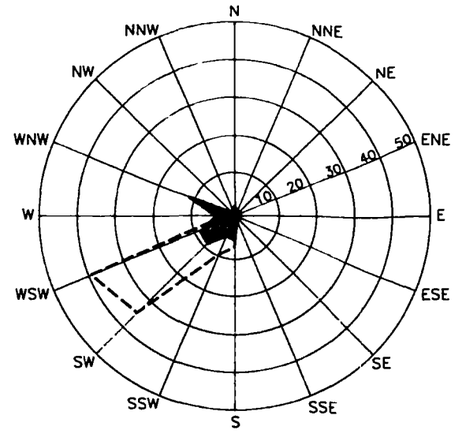
Date: 09/22/94 Drawn by: RSM Scale:



08/16/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	0.00	0.00	0.00
NNE	0.00	0.00	0.00
NE	6.56	3.08	132.59
ENE	2.42	1.54	8.97
E	4.85	1.54	36.14
ESE	1.92	1.54	5.66
SE	4.33	4.62	86.45
SSE	8.18	4.62	308.51
S	2.74	3.08	23.15
SSW	9.61	9.23	852.59
SW	8.07	26.15	1702.59**
WSW	10.32	16.92	1801.76*
W	6.93	18.46	886.41
WNW	2.89	7.69	64.44
NW	6.79	1.54	70.88
NNW	0.00	0.00	0.00

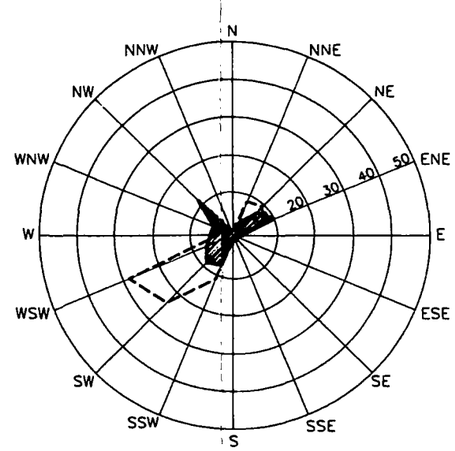
32% Present Calm



08/17/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	0.72	1.64	0.85
NNE	0.00	0.00	0.00
NE	0.00	0.00	0.00
ENE	0.00	0.00	0.00
E	0.00	0.00	0.00
ESE	0.00	0.00	0.00
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	4.83	6.56	159.22
SSW	4.70	9.84	217.61
SW	8.79	34.43	2660.21**
WSW	8.48	39.34	.2827.66*
W	3.88	1.64	24.68
WNW	12.06	6.56	953.21
NW	0.00	0.00	0.00
NNW	0.00	0.00	0.00

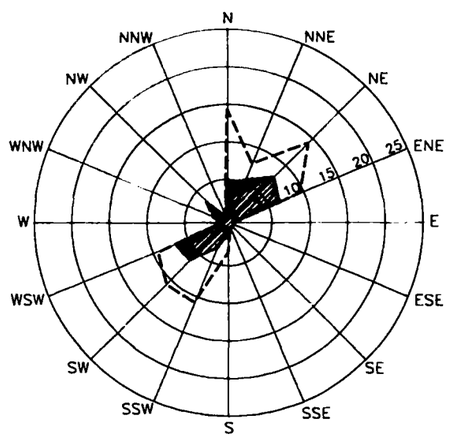
36% Present Calm



08/18/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	0.00	0.00	0.00
NNE	2.66	8.45	59.97
NE	7.97	9.86	626.17
ENE	10.14	7.04	723.92
E	0.46	1.41	0.29
ESE	0.00	0.00	0.00
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	0.00	0.00	0.00
SSW	7.65	11.27	658.86
SW	8.63	23.94	1781.39*
WSW	6.67	28.17	1253.13**
W	5.18	2.82	75.51
WNW	5.07	2.82	72.44
NW	12.37	4.23	646.70
NNW	0.00	0.00	0.00

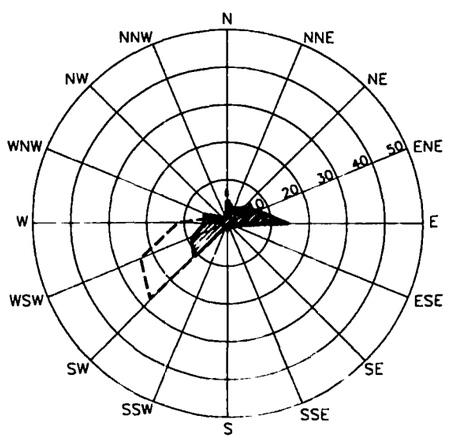
26% Present Calm



08/23/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	4.60	14.29	302.09
NNE	5.66	7.94	254.35
NE	7.96	14.29	905.64*
ENE	6.89	9.52	452.74
E	0.00	0.00	0.00
ESE	0.00	0.00	0.00
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	0.88	3.17	2.47
SSW	3.07	15.87	149.72
SW	6.51	15.87	673.03
WSW	6.99	14.29	697.94**
W	0.00	0.00	0.00
WNW	1.60	1.59	4.05
NW	2.07	3.17	13.60
NNW	0.00	0.00	0.00

34% Present Calm



08/24/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	4.57	7.89	164.68
NNE	3.06	1.32	12.32
NE	4.42	3.95	77.20
ENE	7.86	7.89	488.22
E	14.56	9.21	1953.33**
ESE	0.61	1.32	0.49
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	0.55	1.32	0.39
SSW	0.00	0.00	0.00
SW	11.95	27.63	3949.14*
WSW	8.54	23.68	1726.57
W	4.52	11.84	241.77
WNW	5.60	2.63	82.41
NW	0.86	1.32	0.97
NNW	0.00	0.00	0.00

21% Present Calm

LEGEND

- - - - - Percent wind's

——— Average wind speed

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0037

TITLE:
COLLEGE OF THE CANYONS
Canon, City, Colorado
WINDROSES

T.D.D. T08-9410-014 ZTCOLCWR

ecology & environment, inc.
DENVER, COLORADO

FIG. **8**

Date: 11/04/94 Drawn by: RSM Scale: _____

TABLE 1 (page 1 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-A-1	Air	8-114401	8-16699	8/16/94	1750	ICP Metals
CC-A-2	Air	8-114402	8-16699	8/17/94	1800	ICP Metals
CC-A-3	Air	8-114403	8-16699	8/18/94	1735	ICP Metals
CC-A-4	Air	8-114425	8-19857	8/23/94	1115	ICP Metals
CC-A-5	Air	8-114426	8-19857	8/24/94	1125	ICP Metals
CC-A-6	Air	8-114404	8-16699	8/16/94	1840	ICP Metals
CC-A-7	Air	8-114405	8-16699	8/17/94	1840	ICP Metals
CC-A-8	Air	8-114406	8-16699	8/18/94	1810	ICP Metals
CC-A-9	Air	8-114427	8-19857	8/23/94	1150	ICP Metals
CC-A-10	Air	8-114428	8-19857	8/24/94	1200	ICP Metals
CC-A-11	Air	8-114407	8-16699	8/16/94	1830	ICP Metals
CC-A-12	Air	8-114408	8-16699	8/17/94	1827	ICP Metals
CC-A-13	Air	8-114409	8-16699	8/18/94	1800	ICP Metals
CC-A-14	Air	8-114429	8-19857	8/23/94	1135	ICP Metals
CC-A-15	Air	8-114450	8-19857	8/24/94	1145	ICP Metals
CC-A-16	Air	8-114410	8-16699	8/16/94	1810	ICP Metals
CC-A-17	Air	8-114411	8-16699	8/17/94	1810	ICP Metals
CC-A-18	Air	8-114412	8-16699	8/18/94	1745	ICP Metals
CC-A-19	Air	8-114431	8-19857	8/23/94	1128	ICP Metals
CC-A-20	Air	8-114432	8-19857	8/24/94	1130	ICP Metals
CC-A-21	Air	8-114413	8-16699	8/16/94	1820	ICP Metals

TABLE 1 (page 2 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-A-22	Air	8-114414	8-16699	8/17/94	1812	ICP Metals
CC-A-23	Air	8-114415	8-16699	8/18/94	1747	ICP Metals
CC-A-24	Air	8-114433	8-19856	8/23/94	1130	ICP Metals
CC-A-25	Air	8-114434	8-19856	8/24/94	1135	ICP Metals
CC-A-26	Air	8-114416	8-16698	8/16/94	1725	ICP Metals
CC-A-27	Air	8-114417	8-16698	8/17/94	1745	ICP Metals
CC-A-28	Air	8-114418	8-16698	8/18/94	1720	ICP Metals
CC-A-29	Air	8-114435	8-19856	8/23/94	1110	ICP Metals
CC-A-30	Air	8-114436	8-19856	8/24/94	1105	ICP Metals
CC-A-31	Air	8-114419	8-16698	8/16/94	1850	ICP Metals
CC-A-32	Air	8-114420	8-16698	8/17/94	1850	ICP Metals
CC-A-33	Air	8-114421	8-16698	8/18/94	1820	ICP Metals
CC-A-34	Air	8-114437	8-19856	8/23/94	1155	ICP Metals
CC-A-35	Air	8-114438	8-19856	8/24/94	1210	ICP Metals
CC-A-36	Air	8-114422	8-16698	8/16/94	1900	ICP Metals
CC-A-37	Air	8-114423	8-16698	8/17/94	1900	ICP Metals
CC-A-38	Air	8-114424	8-16698	8/18/94	1830	ICP Metals
CC-A-39	Air	8-114439	8-19856	8/23/94	1205	ICP Metals
CC-A-40	Air	8-114440	8-19856	8/24/94	1220	ICP Metals
CC-SW-01	Water	8-114328	8-16706	8/31/94	0953	HSL Metals

TABLE 1 (page 3 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-SW-02	Water	8-114329	8-16706	8/31/94	0956	HSL Metals
CC-SW-03	Water	8-114330	8-16706	8/31/94	0959	HSL Metals
CC-SW-04	Water	8-114331	8-16706	8/31/94	1011	HSL Metals
CC-SW-05	Water	8-114332	8-16706	8/31/94	1019	HSL Metals
CC-SW-06	Water	8-114333	8-16706	8/31/94	1027	HSL Metals
CC-SW-07	Water	8-114334	8-16706	8/31/94	1032	HSL Metals
CC-SW-08	Water	8-114335	8-16706	8/31/94	1034	HSL Metals
CC-SW-09	Water	8-114336	8-16706	8/31/94	1106	HSL Metals
CC-SW-10	Water	8-114337	8-16706	8/31/94	1108	HSL Metals
CC-SW-11	Water	8-114338	8-16706	8/31/94	1123	HSL Metals
CC-SW-12	Water	8-114339	8-16706	8/31/94	1132	HSL Metals
CC-SW-13	Water	8-114340	8-16706	8/31/94	1152	HSL Metals
CC-SW-14	Water	8-114341	8-16706	8/31/94	1155	HSL Metals
CC-SW-15	Water	8-114342	8-16706	8/31/94	1427	HSL Metals
CC-SW-16	Water	8-114343	8-16707	8/31/94	1335	HSL Metals
CC-SW-17	Water	8-114344	8-16707	8/31/94	1575	HSL Metals
CC-SW-18	Water	8-114345	8-16707	8/31/94	1435	HSL Metals
CC-SW-19	Water	8-114346	8-16707	8/31/94	1531	HSL Metals
CC-SE-01	Sediment	8-114361	8-16708	8/31/94	1530	HSL Metals/CN/XRF
CC-SE-02	Sediment	8-114362	8-16708	8/31/94	1553	HSL Metals/CN/XRF

TABLE 1 (page 4 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-SE-03	Sediment	8-114363	8-16708	8/31/94	1600	HSL Metals/CN/XRF
CC-SE-04	Sediment	8-114364	8-16708	8/31/94	1405	HSL Metals/CN/XRF
CC-SE-05	Sediment	8-114365	8-16708	8/31/94	1435	HSL Metals/CN/XRF
CC-SE-06	Sediment	8-114366	8-16708	8/31/94	1155	HSL Metals/CN/XRF
CC-SE-07	Sediment	8-114367	8-16708	8/31/94	1515	HSL Metals/CN/XRF
CC-SE-08	Sediment	8-114368	8-16708	8/31/94	1452	HSL Metals/CN/XRF
CC-SE-09	Sediment	8-114369	8-16708	8/31/94	1152	HSL Metals/CN/XRF
CC-SE-10	Sediment	8-114370	8-16708	8/31/94	1130	HSL Metals/CN/XRF
CC-SE-11	Sediment	8-114371	8-16708	8/31/94	1110	HSL Metals/CN/XRF
CC-SE-12	Sediment	8-114372	8-16708	8/31/94	1057	HSL Metals/CN/XRF
CC-SE-13	Sediment	8-114373	8-16709	8/31/94	1013	HSL Metals/CN/XRF
CC-SE-14	Sediment	8-114374	8-16709	8/31/94	0957	HSL Metals/CN/XRF
CC-SE-15	Sediment	8-114375	8-16709	8/31/94	0955	HSL Metals/CN/XRF
CC-SE-16	Sediment	8-114376	8-16709	8/31/94	1000	HSL Metals/CN/XRF
CC-SO-01	Soil	8-114347	8-16707	8/24/94	1001	HSL Metals/XRF
CC-SO-02	Soil	8-114348	8-16707	8/24/94	0952	HSL Metals/XRF
CC-SO-03	Soil	8-114349	8-16707	8/23/94	1223	HSL Metals/XRF
CC-SO-04	Soil	8-114350	8-16707	8/23/94	1454	HSL Metals/XRF
CC-SO-05	Soil	8-114351	8-16707	8/23/94	1512	HSL Metals/XRF
CC-SO-06	Soil	8-114352	8-16707	8/23/94	1655	HSL Metals/XRF

TABLE 1 (page 5 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-SO-07	Soil	8-114353	8-16707	8/23/94	1714	HSL Metals/XRF
CC-SO-08	Soil	8-114354	8-16707	8/24/94	0855	HSL Metals/XRF
CC-SO-09	Soil	8-114355	8-16707	8/24/94	1008	HSL Metals/XRF
CC-SO-10	Soil	8-114356	8-16707	8/24/94	1418	HSL Metals/CN/XRF
CC-SO-11	Soil	8-114357	8-16707	8/24/94	1434	HSL Metals/CN/XRF
CC-SO-12	Soil	8-114358	8-16708	8/24/94	1448	HSL Metals/CN/XRF
CC-SO-13	Soil	8-114359	8-16708	8/24/94	1530	HSL Metals/CN/XRF
CC-SO-14	Soil	8-114360	8-16708	8/24/94	1600	HSL Metals/XRF
CC-XRF-001	Soil	---	---	8/23/94	1205	XRF
CC-XRF-002	Soil	---	---	8/23/94	1212	XRF
CC-XRF-003	Soil	8-114349	8-16707	8/23/94	1223	HSL Metals/XRF
CC-XRF-004	Soil	---	---	8/23/94	1229	XRF
CC-XRF-005	Soil	8-114350	8-16707	8/23/94	1454	HSL Metals/XRF
CC-XRF-006	Soil	---	---	8/23/94	1503	XRF
CC-XRF-007	Soil	8-114351	8-26707	8/23/94	1512	HSL Metals/XRF
CC-XRF-008	Soil	---	---	8/23/94	1524	XRF
CC-XRF-009	Soil	---	---	8/23/94	1532	XRF
CC-XRF-010	Soil	---	---	8/23/94	1535	XRF
CC-XRF-011	Soil	---	---	8/23/94	1635	XRF
CC-XRF-012	Soil	---	---	8/23/94	1641	XRF

TABLE 1 (page 6 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-XRF-013	Soil	8-114352	8-16707	8/23/94	1655	HSL Metals/XRF
CC-XRF-014	Soil	---	---	8/23/94	1659	XRF
CC-XRF-015	Soil	8-114353	8-16707	8/23/94	1714	HSL Metals/XRF
CC-XRF-016	Soil	---	---	8/23/94	1719	XRF
CC-XRF-017	Soil	---	---	8/23/94	1730	XRF
CC-XRF-018	Soil	---	---	8/23/94	1750	XRF
CC-XRF-019	Soil	---	---	8/23/94	1801	XRF
CC-XRF-020	Soil	---	---	8/24/94	0751	XRF
CC-XRF-021	Soil	---	---	8/24/94	0757	XRF
CC-XRF-022	Soil	---	---	8/24/94	0800	XRF
CC-XRF-023	Soil	---	---	8/24/94	0809	XRF
CC-XRF-024	Soil	---	---	8/24/94	0822	XRF
CC-XRF-025	Soil	---	---	8/24/94	0850	XRF
CC-XRF-026	Soil	8-114354	8-16707	8/24/94	0855	HSL Metals/XRF
CC-XRF-027	Soil	---	---	8/24/94	0908	XRF
CC-XRF-028	Soil	---	---	8/24/94	0918	XRF
CC-XRF-029	Soil	8-114348	8-16707	8/24/94	0952	HSL Metals/XRF
CC-XRF-030	Soil	8-114347	8-16707	8/24/94	1001	HSL Metals/XRF
CC-XRF-031	Soil	8-114355	8-16707	8/24/94	1008	HSL Metals/XRF
CC-XRF-032	Soil	---	---	8/24/94	1016	XRF

TABLE 1 (page 7 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-XRF-033	Soil	---	---	8/24/94	1021	XRF
CC-XRF-034	Soil	---	---	8/24/94	1028	XRF
CC-XRF-035	Soil	---	---	8/24/94	1057	XRF
CC-XRF-036	Soil	---	---	8/24/94	1101	XRF
CC-XRF-037	Soil	---	---	8/24/94	1107	XRF
CC-XRF-038	Soil	---	---	8/24/94	1116	XRF
CC-XRF-039	Soil	---	---	8/24/94	1124	XRF
CC-XRF-040	Soil	---	---	8/24/94	1414	XRF
CC-XRF-041	Soil	8-114356	8-16707	8/24/94	1418	HSL Metals/CN/XRF
CC-XRF-042	Soil	8-114357	8-16707	8/24/94	1434	HSL Metals/CN/XRF
CC-XRF-043	Soil	8-114358	8-16708	8/24/94	1448	HSL Metals/CN/XRF
CC-XRF-044	Soil	8-114359	8-16708	8/24/94	1518	HSL Metals/CN/XRF
CC-XRF-045	Soil	8-114360	8-16708	8/24/94	1530	HSL Metals/CN/XRF
CC-XRF-046	Soil	---	---	8/24/94	1600	XRF
CC-XRF-047	Soil	---	---	8/24/94	1630	XRF
CC-XRF-048	Soil	---	---	8/25/94	1434	XRF
CC-XRF-049	Soil	---	---	8/25/94	1440	XRF
CC-XRF-050	Soil	---	---	8/25/94	1445	XRF
CC-XRF-051	Soil	---	---	8/25/94	1450	XRF
CC-XRF-052	Soil	---	---	8/25/94	1500	XRF

TABLE 1 (page 8 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-XRF-053	Soil	---	---	8/25/94	1505	XRF
CC-XRF-054	Soil	---	---	8/25/94	1509	XRF
CC-XRF-055	Soil	---	---	8/25/94	1515	XRF
CC-XRF-101	Sediment	---	---	8/23/94	1449	XRF
CC-XRF-102	Sediment	---	---	8/23/94	1547	XRF
CC-XRF-103	Sediment	---	---	8/23/94	1754	XRF
CC-XRF-104	Sediment	---	---	8/24/94	0827	XRF
CC-XRF-111	Sediment	8-114375	8-16709	8/31/94	0955	HSL Metals/CN/XRF
CC-XRF-112	Sediment	8-114376	8-16709	8/31/94	1000	HSL Metals/CN/XRF
CC-XRF-113	Sediment	8-114374	8-16709	8/31/94	0957	HSL Metals/CN/XRF
CC-XRF-114	Sediment	8-114373	8-16709	8/31/94	1013	HSL Metals/CN/XRF
CC-XRF-115	Sediment	---	---	8/31/94	1015	XRF
CC-XRF-116	Sediment	---	---	8/31/94	1027	XRF
CC-XRF-117	Sediment	---	---	8/31/94	1034	XRF
CC-XRF-118	Sediment	8-114372	8-16708	8/31/94	1057	HSL Metals/CN/XRF
CC-XRF-119	Sediment	---	---	8/31/94	1107	XRF
CC-XRF-120	Sediment	8-114371	8-16708	8/31/94	1110	HSL Metals/CN/XRF
CC-XRF-121	Sediment	---	---	8/31/94	1127	XRF
CC-XRF-122	Sediment	8-114370	8-16708	8/31/94	1130	HSL Metals/CN/XRF
CC-XRF-123	Sediment	---	---	8/31/94	1143	XRF

TABLE 1 (page 9 of 9)
SAMPLE SUMMARY
COLLEGE OF THE CANYONS SMELTER SITE
TDD # T08-9410-014

Sample ID	Sample Medium	EPA Tag Number	Chain-of-Custody	Sample Date	Sample Time	Analysis Requested
CC-XRF-124	Sediment	8-114369	8-16708	8/31/94	1152	HSL Metals/CN/XRF
CC-XRF-125	Sediment	8-114366	8-16708	8/31/94	1155	HSL Metals/CN/XRF
CC-XRF-126	Sediment	---	---	8/31/94	1153	XRF
CC-XRF-127	Sediment	---	---	8/31/94	1400	XRF
CC-XRF-128	Sediment	---	---	8/31/94	1337	XRF
CC-XRF-129	Sediment	---	---	8/31/94	1402	XRF
CC-XRF-130	Sediment	8-114364	8-16708	8/31/94	1405	HSL Metals/CN/XRF
CC-XRF-131	Sediment	8-114365	8-16708	8/31/94	1435	HSL Metals/CN/XRF
CC-XRF-132	Sediment	---	---	8/31/94	1430	XRF
CC-XRF-133	Sediment	---	---	8/31/94	1445	XRF
CC-XRF-134	Sediment	8-114368	8-16708	8/31/94	1452	HSL Metals/CN/XRF
CC-XRF-135	Sediment	---	---	8/31/94	1505	XRF
CC-XRF-136	Sediment	8-114367	8-16708	8/31/94	1515	HSL Metals/CN/XRF
CC-XRF-137	Sediment	8-114361	8-16708	8/31/94	1530	HSL Metals/CN/XRF
CC-XRF-138	Sediment	---	---	8/31/94	1550	XRF
CC-XRF-139	Sediment	8-114362	8-16708	8/31/94	1553	HSL Metals/CN/XRF
CC-XRF-140	Sediment	8-114363	8-16708	8/31/94	1600	HSL Metals/CN/XRF

Table 2 (Page 1 of 2): Canon City Soil XRF Qualified Results for Lead and Zinc

ID	Zn – Qual		Pb – Qual	
CCXRF001	4500		6100	
CCXRF002	2800		8700	
CCXRF003	6000		3300	
CCXRF004	2600		800	
CCXRF005	840		33000	
CCXRF006	2200		4000	
CCXRF007	2600		4700	
CCXRF008	34000		9300	
CCXRF009	2500		10000	
CCXRF010	7100		1900	
CCXRF011	2000		9700	
CCXRF012	9200		5600	
CCXRF013	125000		31000	
CCXRF014	38000		11000	
CCXRF015	7800		9000	
CCXRF016	1600		600	
CCXRF017	4600		11000	
CCXRF018	540		510	
CCXRF019	510		660	
CCXRF020	4200		11000	
CCXRF021	3000		8500	
CCXRF022	3200		2900	
CCXRF023	5200		4400	
CCXRF024	2900		9400	
CCXRF025	2300		12000	
CCXRF026	270	J	48000	
CCXRF027	670		470	
CCXRF028	12000		13000	
CCXRF029	14000		620	
CCXRF030	9400		430	
CCXRF031	137000		34000	
CCXRF032	2400		8500	
CCXRF033	8200		5200	
CCXRF034	116000		23000	
CCXRF035	113000		4700	
CCXRF036	2900		1400	
CCXRF037	20000		3600	
CCXRF038	9600		4900	
CCXRF039	16000		8200	
CCXRF040	47000		11000	
CCXRF041	39000		9600	
CCXRF042	4900		3700	
CCXRF043	43000		15000	
CCXRF044	3200		6700	
CCXRF045	7300		13000	
CCXRF046	840		300	
CCXRF047	14000		38000	

Table 2 (Page 2 of 2): Canon City Soil XRF Qualified Results for Lead and Zinc

ID	Zn – Qual		Pb – Qual	
CCXRF048	1900		6100	
CCXRF049	6800		5500	
CCXRF050	780		1400	
CCXRF051	32000		5500	
CCXRF052	8200		10000	
CCXRF053	13000		7400	
CCXRF054	3600		9900	
CCXRF055	2200		6700	

TABLE 3 (page 1 of 2)
VALIDATED SOIL RESULTS (mg/kg)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NUMBER:	CC-SO-01		CC-SO-02		CC-SO-03		CC-SO-04		CC-SO-05		CC-SO-06		CC-SO-07	
STATION LOCATION:	CC-XRF-030		CC-XRF-29		CC-XRF-003		CC-XRF-005		CC-XRF-007		CC-XRF-013		CC-XRF-015	
DATE:	8/24/94		8/24/94		8/23/94		8/23/94		8/23/94		8/23/94		8/23/94	
TIME:	1001		0952		1223		1454		1512		1655		1714	
Aluminum	9,950		12,300		1,270		1,060		14,700		22,000		1,180	
Antimony	10.3	U	15.2		13.7	U	21.1		10.5	U	389		70.6	
Arsenic	19.5	J	28.8	J	25.0	J	812	J	183	J	155	J	1,190	J
Barium	138		144		12.4	J	26.5	J	164		631		48.2	J
Beryllium	1.0	U	1.0	U	1.4	U	1.1	U	1.0	U	1.1	U	1.2	U
Cadmium	46.8		94.1		41.3		17.5		15.2		128		74.0	
Calcium	4,870		3,530		2,450		12,700		5,240		7,520		2,110	
Chromium	146	J	12.5	J	2.7	U	2.3	U	15.5	J	237	J	2.4	U
Cobalt	10.3		8.4	J	2.7	U	2.3	U	5.3	J	10.7	J	2.4	U
Copper	175		220		158		127		242		6,940		277	
Iron	25,400		22,800		286,000		250,000		67,600		37,600		405,000	
Lead	506		656		4,980		82,400		5,410		57,400		20,000	
Magnesium	2,730		3,900		822	J	273	J	3,920		2,220		3,350	
Manganese	972		624		919		11.4		498		790		9,560	
Mercury	0.04	U	0.08	J	0.06	U	3.4		0.17		4.8		0.16	
Nickel	10.7		11.8		5.5	U	8.2	J	12.3		2,860		4.8	U
Potassium	2,350		3,640		547	U	1,950		4,730		1,830		1,150	J
Selenium	1.0	R	1.0	R	1.4	R	1.1	R	1.0	R	1.1	R	1.2	R
Silver	2.9	J	4.7	J	3.0	J	122	J	11.2	J	24.8	J	27.9	J
Sodium	304	J	213	J	110	J	275	J	449	J	574	J	132	J
Thallium	0.41	U	0.42	J	0.59	J	7.9		0.95	J	3.3		3.8	
Vanadium	28.1		32.3		2.7	U	2.3	U	44.7		29.6		2.4	U
Zinc	8,960		10,700		9,070		878		2,750		170,000		12,600	
Cyanide	---		---		---		---		---		---		---	

U = The material was analyzed for, but not detected. The associated numerical value is the sample detection limit or adjusted sample detection limit.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.
R = The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

TABLE 3 (page 2 of 2)
VALIDATED SOIL RESULTS (mg/kg)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NUMBER:	CC-SO-08		CC-SO-09		CC-SO-10		CC-SO-11		CC-SO-12		CC-SO-13		CC-SO-14	
STATION LOCATION:	CC-XRF-026		CC-XRF-031		CC-XRF-041		CC-XRF-042		CC-XRF-043		CC-XRF-045		CC-XRF-046	
DATE:	8/24/94		8/24/94		8/24/94		8/24/94		8/24/94		8/24/94		8/24/94	
TIME:	0855		1008		1418		1434		1448		1530		1600	
Aluminum	174		19,500		5,550		9,120		2,370		1,440		2,450	
Antimony	28.3		425		185	J	12.6	UJ	27.8	J	27.9	J	11.1	U
Arsenic	943	J	124	J	1,810		131		562		1,010		11.4	J
Barium	8.3	J	568		12.4	J	162		36.3	J	12.8	J	224	
Beryllium	1.1	U	1.1	U	1.2	U	1.3	U	1.2	U	1.3	U	1.1	U
Cadmium	25.4		1,070		632		14.8		43.8		153		13.8	
Calcium	1,100	J	10,600		20,600		42,400		1,940		1,450		17,700	
Chromium	2.2	U	198	J	9.9		3.8		5.5		2.6	U	2.4	J
Cobalt	2.2	U	15.6		2.3	U	27.2		2.5	J	2.6	U	2.2	U
Copper	94.2		7,710		1,430		1,030		466		212		18.8	
Iron	237,000		30,400		171,000		127,000		300,000		335,000		15,000	
Lead	146,000		53,600		18,700		4,460		19,800		19,600		517	
Magnesium	158	J	2,290		1,430		3,670		1,930		4,420		272	J
Manganese	12.6		828		2,190		1,850		3,090		15,900		37.6	
Mercury	0.86		2.6		0.47		0.19		0.36		0.14		0.67	
Nickel	7.1	J	2,590		4.7	U	5.4	J	189		5.1	U	4.4	U
Potassium	832	J	1,940		3,650		2,330		1,030	J	702	J	4,680	
Selenium	1.1	R	1.1	R	1.2	R	1.3	R	1.2	R	1.3	R	1.1	R
Silver	135	J	21.3	J	27.1		13.4		25.2		22.8		2.2	UJ
Sodium	89.0	J	587	J	243	J	500	J	254	J	137	J	619	J
Thallium	7.2		2.8		12.0		0.94	J	1.8	J	2.1	J	0.44	U
Vanadium	2.2	U	27.5		11.8		17.5		3.7	J	2.6	U	15.6	
Zinc	312		171,000		102,000	J	5,590	J	19,800	J	17,800	J	785	
Cyanide	---		---		0.59	U	0.63	U	0.59	U	0.64	U	---	

U = The material was analyzed for, but not detected. The associated numerical value is the sample detection limit or adjusted sample detection limit.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.
UJ = The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

TABLE 4 (page 1 of 2)
SCREENING AND CONFIRMATION SAMPLE ANALYSES
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

Sample No.	XRF	Lead/Lab	Lead/XRF	% Recovery	Zinc/Lab	Zinc/XRF	% Recovery
CC-SO-01	030	506	430	85	8,960	9,400	105
CC-SO-02	029	656	620	95	10,700	14,000	131
CC-SO-03	003	4,980	3,300	66	9,070	6,000	66
CC-SO-04	005	82,400	33,000	40	878	840	96
CC-SO-05	007	5,410	4,700	87	2,750	2,600	95
CC-SO-06	013	57,400	31,000	54	170,000	125,000	74
CC-SO-07	015	20,000	9,000	45	12,600	7,800	62
CC-SO-08	026	146,000	48,000	33	312	270 J	87
CC-SO-09	031	53,600	34,000	63	171,000	137,000	80
CC-SO-10	041	18,700	9,600	51	102,000	39,000	38
CC-SO-11	042	4,460	3,700	83	5,590	4,900	88
CC-SO-12	043	19,800	15,000	76	19,800	43,000	217
CC-SO-13	045	19,600	13,000	66	17,800	73,00	41
CC-SO-14	046	517	300	58	785	840	107
CC-SE-01	137	12	59 U	1,900	150	230 J	153
CC-SE-02	139	11	78 J	700	14	86 J	614
CC-SE-03	140	249	140 J	56	5,520	5,300	96

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.

U = The material was analyzed for, but not detected. The associated numerical value is the sample detection limit or adjusted sample detection limit.

TABLE 4 (Page 2 of 2)
SCREENING AND CONFIRMATION SAMPLE ANALYSES
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

Sample No.	XRF	Lead/Lab	Lead/XRF	% Recovery	Zinc/Lab	Zinc/XRF	% Recovery
CC-SE-04	130	7,330	5,400	74	6,580	5,500	84
CC-SE-05	131	11,400	6,400	56	3,680	2,800	76
CC-SE-06	125	891	710	80	1,410	1,400	99
CC-SE-07	136	6,850	3,800	55	968	750	77
CC-SE-08	134	3,020	2,600	86	1,090	810	74
CC-SE-09	124	6,000	3,300	55	2,480	1,800	73
CC-SE-10	122	175	210	120	545	590	108
CC-SE-11	120	341	300	88	882	880	100
CC-SE-12	118	451	340	75	1,160	910	78
CC-SE-13	114	1,460	640	44	1,620	1,300	80
CC-SE-14	113	111	77 J	69	352	430	122
CC-SE-15	111	39	59 U	151	201	300	149
CC-SE-16	112	29	59 U	203	227	290	128

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.

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TABLE 5 (page 1 of 1)
STATISTICAL ANALYSIS OF SCREENING AND CONFIRMATION SAMPLES
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

	No. of Samples	Average %	σ_{n-1}	Multiplier
Lead Samples				
All samples	26	68	20	1.47
100-1,000 ppm	9	81	20	1.23
1,000-10,000 ppm	8	69	17	1.45
>10,000 ppm	9	54	13	1.85
Zinc Samples				
All samples	28	94	35	1.06
100-1,000 ppm	9	108	22	0.93
1,000-10,000 ppm	12	84.5	12	1.18
>10,000 ppm	7	92	63	1.09

ppm = parts per million

recycled paper

TABLE 6 (page 2 of 3)
VALIDATED SURFACE WATER RESULTS (µg/L)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NUMBER:	CC-SW-07		CC-SW-08		CC-SW-09		CC-SW-10		CC-SW-11		CC-SW-12	
STATION LOCATION:	GW SEEP FROM HILLSIDE		UPSTREAM OF SEEPS BEFORE KOCHS		"SEWER" WATER INFLUENT		UPSTREAM OF "SEWER" WATER INFLUENT		GW @ TREE		UPSTREAM OF GW @ TREE	
DATE:	8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94	
TIME:	1032		1034		1106		1108		1123		1132	
Aluminum	103	U	16,400		50.0	U	20,000		254	U	6,760	
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	2.2	J	51.2		2.0	U	95.7		2.0	U	33.4	
Barium	21.8	J	242		73.5	J	255		121	J	109	J
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cadmium	5.0	U	7.5		5.0	U	13.6		5.0	U	5.0	U
Calcium	87,100		123,000		108,000		195,000		51,900		198,000	
Chromium	10.0	U	10.0	U	10.0	U	25.6		10.0	U	10.0	U
Cobalt	10.0	U	10.0	U	10.0	U	12.8	J	10.0	U	10.0	U
Copper	10.0	U	127		10.0	U	175		10.0	U	55.2	
Iron	1,250		42,400		87.6	J	54,400		347		16,400	
Lead	4.4	J	3,010		1.0	UJ	4,540		1.4	J	1,300	
Magnesium	29,600		37,300		35,400		62,200		13,300		62,300	
Manganese	136		1,070		84.2		1,290		14.6	J	693	
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Potassium	5,320		20,100		5,570		20,100		10,700		16,400	
Selenium	10.0	R	10.0	R	10.0	R	10.0	R	10.0	R	10.0	R
Silver	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Sodium	49,200		46,600		28,200		114,000		11,600		123,000	
Thallium	2.0	UJ	2.0	UJ	2.0	U	2.0	UJ	2.0	U	2.0	UJ
Vanadium	10.0	U	38.8	J	10.0	U	50.4		10.0	U	17.8	J
Zinc	24.5		1,950		14.3	J	2,980		14.7	J	1,140	

U = The material was analyzed for, but not detected. The associated numerical value is the sample detection limit or adjusted sample detection limit.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.
UJ = The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.
R = The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

TABLE 6 (page 1 of 3)
VALIDATED SURFACE WATER RESULTS (µg/L)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NUMBER:	CC-SW-01		CC-SW-02		CC-SW-03		CC-SW-04		CC-SW-05		CC-SW-06	
STATION LOCATION:	DOWNSTREAM IN AK		UPSTREAM IN AK		DRAINAGE BEFORE AK		UNDER STANLEY BRIDGE		IRRIGATION CANAL		CREEK BETWEEN HIGHLAND AND JUNKYARD	
DATE:	8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94	
TIME:	0953		0956		0959		1011		1019		1027	
Aluminum	1,910		1,550		1,340		6,910		2,170		30,900	
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	52.0	J
Arsenic	2.0	U	2.0	U	2.6	J	16.9		2.0	U	74.6	
Barium	97.5	J	95.1	J	78.1	J	140	J	99.9	J	406	
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	19.1	
Calcium	47,900		47,600		50,100		70,800		48,500		127,000	
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	27.6	
Cobalt	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	11.6	J
Copper	10.0	U	10.0	U	10.0	U	46.2		10.0	U	211	
Iron	2,130		1,770		2,010		13,600		2,370		77,000	
Lead	12.1	J	3.0	J	62.0	J	758		7.3	J	4,300	
Magnesium	12,000		12,000		12,400		20,400		12,100		40,300	
Manganese	142		136		81.3		447		104		2,080	
Mercury	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	20.0	U	20.0	U	20.0	U	20.0	U	34.6	J	21.4	J
Potassium	2,510	J	4,300	J	4,200	J	9,440		4,210	J	24,200	
Selenium	5.0	R	5.0	R	10.0	R	10.0	R	10.0	R	10.0	R
Silver	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Sodium	15,500		15,100		15,500		23,000		16,000		44,500	
Thallium	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ
Vanadium	10.0	U	10.0	U	10.0	U	13.1	J	10.0	U	78.1	
Zinc	80.3		38.5		151		629		119		2,980	

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UJ = The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.
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TABLE 6 (page 3 of 3)
VALIDATED SURFACE WATER RESULTS (µg/L)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NUMBER:	CC-SW-13	CC-SW-14	CC-SW-15	CC-SW-16	CC-SW-17	CC-SW-18	CC-SW-19
STATION LOCATION:	DOWNSTREAM OF CONF. OF MAIN & WEST	UPSTREAM OF CONF. OF MAIN & WEST	W OF VALLEY RD AT MAIN & WEST	DRAINAGE N OF VALLEY RD & MAIN	WEST OF RED PILES	SE CORNER OF VALLEY RD & MARIPOSA	WESTERN DRAINAGE
DATE:	8/31/94	8/31/94	8/31/94	8/31/94	8/31/94	8/23/94	8/25/94
TIME:	1152	1155	1427	1335	1335	1435	1531
Aluminum	474 U	2,700	75.2 U	291,000	232,000	936,000	794,000
Antimony	50.0 U	50.0 U	50.0 U	2,120	2,240	5,620	8,580
Arsenic	3.0 J	15.2	2.1 J	20,600	2,780	40,100	6,700
Barium	33.3 J	54.1 J	35.8 J	59.5 J	7.4 J	5.9 J	25.0 U
Beryllium	5.0 U	5.0 U	5.0 U	13.8	15.7	40.5	54.6
Cadmium	5.8	5.0 U	5.0 U	7,270	4,070	18,200	14,600
Calcium	367,000	373,000	344,000	260,000	268,000	423,000	640,000
Chromium	10.0 U	10.0 U	10.0 U	194	179	467	676
Cobalt	10.0 U	10.0 U	10.0 U	92.4	311	286	1,260
Copper	15.0 J	16.3 J	10.0 U	21,100	34,700	48,700	111,000
Iron	1,310	4,730	301	2,930,000	5,690,000	6,120,000	13,900,000
Lead	82.5 J	224 J	7.0 J	130 J	20.0 UJ	20.0 UJ	20.0 UJ
Magnesium	122,000	121,000	99,700	91,900	304,000	237,000	892,000
Manganese	783	674	79.6	141,000	522,000	396,000	1,560,000
Mercury	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	20.0 U	20.0 U	20.0 U	275	2,140	832	7,510
Potassium	16,100	10,900	6,130	2,840 J	2,000 U	2,000 U	10,000 U
Selenium	10.0 R	1.7 R	10.0 R	10.0 R	20.0 R	20.0 R	20.0 R
Silver	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	50.0 U
Sodium	297,000	287,000	185,000	6,020	265 J	1,740 J	644 J
Thallium	2.0 UJ	2.0 UJ	2.0 UJ	20.0 UJ	40.0 U	40.0 U	41.2 J
Vanadium	10.0 U	10.0 U	10.0 U	208	10.0 U	686	50.0 U
Zinc	1,030	1,250	272	1,170,000	1,100,000	3,050,000	3,260,000

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Table 7 (Page 1 of 1): Canon City Sediment XRF Qualified Results for Lead and Zinc

ID	Zn (ppm)		Pb (ppm)	
CCXRF101	1700		3900	
CCXRF102	13000		8200	
CCXRF103	3100		2200	
CCXRF104	3400		7300	
CCXRF111	300		59	U
CCXRF112	290		59	U
CCXRF113	430		77	J
CCXRF114	1300		640	
CCXRF115	890		360	
CCXRF116	780		320	
CCXRF117	660		150	J
CCXRF118	910		340	
CCXRF119	690		300	
CCXRF120	880		300	
CCXRF121	820		340	
CCXRF122	590		210	
CCXRF123	540		360	
CCXRF124	1800		3300	
CCXRF125	1400		710	
CCXRF126	390		400	
CCXRF127	510		260	
CCXRF128	560		120	J
CCXRF129	320		190	J
CCXRF130	5500		5400	
CCXRF131	2800		6400	
CCXRF132	4100		560	
CCXRF133	560		410	
CCXRF134	810		2600	
CCXRF135	1800		2100	
CCXRF136	750		3800	
CCXRF137	230	J	59	U
CCXRF138	1400		59	U
CCXRF139	86	J	78	J
CCXRF140	5300		140	J

TABLE 8 (page 1 of 2)
VALIDATED SEDIMENT RESULTS (mg/kg)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NUMBER:	CC-SE-01		CC-SE-02		CC-SE-03		CC-SE-04		CC-SE-05		CC-SE-06		CC-SE-07		CC-SE-08	
STATION LOCATION:	CC-XRF-137		CC-XRF-139		CC-XRF-140		CC-XRF-130		CC-XRF-131		CC-XRF-125		CC-XRF-136		CC-XRF-134	
DATE:	8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94	
TIME:	1530		1553		1600		1405		1435		1155		1515		1452	
Aluminum	5,320		3,300		14,100		31,800		16,000		18,800		6,690		11,100	
Antimony	10.7	UJ	10.6	UJ	14.3	J	15.6	UJ	27.0	J	14.1	UJ	13.8	J	35.0	J
Arsenic	1.6	J	0.89	J	6.1	J	201		330		47.0		99.0		61.3	
Barium	48.8		35.8	J	187		305		188		208		79.1		98.3	
Beryllium	1.1	U	1.1	U	1.1	U	1.6	U	1.4	U	1.4	U	1.2	U	1.2	U
Cadmium	2.1		1.1	U	37.3		42.1		17.1		10.1		8.2		7.2	
Calcium	6,060		4,090		20,900		26,200		2,850		11,500		3,220		3,460	
Chromium	6.6		3.5		13.0		27.5		16.0		17.1		6.4		14.6	
Cobalt	7.3	J	3.2	J	10.4	J	13.3	J	4.3	J	7.6	J	2.6	J	3.8	J
Copper	12.7		6.3		22.7		291		386		79.6		78.1		94.6	
Iron	18,700		7,630		22,300		66,400		108,000		36,000		115,000		68,600	
Lead	11.9		10.6		249		7,330		11,400		891		6,850		3,020	
Magnesium	3,390		1,830		6,630		11,800		4,160		7,280		2,610		3,470	
Manganese	247		143		1,910		1,420		558		545		421		629	
Mercury	0.04	U	0.04	U	0.05	U	0.30		0.49		0.05	J	0.05	U	0.05	U
Nickel	4.7	J	4.7	J	14.2		20.4		13.5		10.8	J	4.8	U	6.9	J
Potassium	1,360		780	J	4,500		9,440		5,410		4,510		2,410		3,060	
Selenium	1.1	R	0.21	R	1.1	R	1.6	R	1.4	R	1.4	R	1.2	R	1.2	R
Silver	2.1	U	2.1	U	2.2	U	13.3		22.5		2.8	U	13.3		3.8	
Sodium	195	J	145	J	248	J	4,230		654	J	588	J	343	J	366	J
Thallium	0.43	U	0.42	U	0.45	U	1.3	J	2.5	J	0.57	U	1.1	J	0.66	J
Vanadium	32.5		14.5		34.6		64.5		43.5		46.3		25.4		34.0	
Zinc	150	J	14	J	5,520	J	6,580	J	3,680	J	1,410	J	968	J	1,090	J
Cyanide	0.53	U	0.53	U	0.56	U	0.78	U	0.70	U	0.71	U	0.60	U	0.60	U

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TABLE 8 (page 2 of 2)
VALIDATED SEDIMENT RESULTS (mg/kg)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NUMBER:	CC-SE-09		CC-SE-10		CC-SE-11		CC-SE-12		CC-SE-13		CC-SE-14		CC-SE-15		CC-SE-16	
STATION LOCATION:	CC-XRF-124		CC-XRF-122		CC-XRF-120		CC-ZRF-118		CC-XRF-114		CC-XRF-113		CC-XRF-111		CC-XRF-112	
DATE:	8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94		8/31/94	
TIME:	1152		1130		1110		1057		1013		0957		0955		1000	
Aluminum	18,700		5,730		7,480		9,240		21,600		18,500		15,300		12,500	
Antimony	20.1	J	12.4	UJ	12.0	UJ	12.9	UJ	21.6	J	13.2	UJ	13.7	UJ	12.7	UJ
Arsenic	159		40.0		26.5		28.3		70.1		5.8	J	3.0	J	2.5	U
Barium	184		55.4		97.4		100		207		175		221		147	
Beryllium	1.5	U	1.2	U	1.2	U	1.3	U	1.5	U	1.3	U	1.4	U	1.3	U
Cadmium	16.1		2.7		5.7		6.1		13.5		2.7		2.3		1.8	
Calcium	13,700		3,570		3,660		6,120		9,700		29,700		20,000		18,000	
Chromium	19.3		5.4		8.1		9.6		21.9		19.1		21.9		17.7	
Cobalt	8.1	J	3.4	J	5.3	J	7.9	J	9.4	J	8.5	J	11.2	J	7.8	J
Copper	264		29.0		35.6		54.3		111		27.2		21.0		15.0	
Iron	78,600		23,200		25,400		32,100		46,400		25,900		29,700		21,700	
Lead	6,000		175		341		451		1,460		111		38.7	J	29.0	
Magnesium	6,950		2,970		3,210		4,010		8,090		14,900		9,870		8,570	
Manganese	800		376		447		594		1,060		560		575		376	
Mercury	0.19		0.05	U	0.05	U	0.05	U	0.10	J	0.05	U	0.05	U	0.05	U
Nickel	10.3	J	7.5	J	9.7		11.1		19.0		16.4		17.2		14.2	
Potassium	4,700		1,440		1,760		2,110		5,500		5,350		5,010		4,440	
Selenium	1.5	R	1.2	R	1.2	R	1.3	R	1.5	R	1.3	R	1.4	R	1.3	R
Silver	11.4		2.5	U	2.4	U	2.6	U	2.9	U	2.6	U	2.7	U	2.5	U
Sodium	936	J	287	J	212	J	273	J	359	J	284	J	322	J	280	J
Thallium	1.5	J	0.50	U	0.48	U	0.51	U	1.1	J	0.53	U	0.55	U	0.51	U
Vanadium	60.9		20.1		30.1		30.6		57.5		39.5		55.8		38.0	
Zinc	2,480	J	545	J	882	J	1,160	J	1,620	J	352	J	201	J	227	J
Cyanide	0.73	U	0.62	U	0.60	U	0.64	U	0.73	U	0.66	U	0.69	U	0.64	U

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TABLE 9 (page 1 of 5)
VALIDATED AIR SAMPLING RESULTS (µg/filter)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NO.:	CC-A-1		CC-A-6		CC-A-11		CC-A-16		CC-A-21		CC-A-26		CC-A-31		CC-A-36	
STATION LOCATION:	COLLEGE OF THE CANYONS		FREMONT COUNTY BUSINESS DEVELOPMENT		NEAR BARRICADE		WEST SIDE-EAST UNIT OF DUPLICATE		WEST SIDE-WEST UNIT OF DUPLICATE		CO STATE FOREST SVC. SHOPS		TRANSFER YARD		SALVAGE YARD	
DATE:	8/16/94		8/16/94		8/16/94		8/16/94		8/16/94		8/16/94		8/16/94		8/16/94	
TIME:	1750		1840		1830		1810		1820		1725		1850		1900	
Aluminum	631		418		573		547		471		433		527		465	
Antimony	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U
Arsenic	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U
Barium	10.4	J	6.7	J	9.0	J	8.8	J	7.8	J	7.4	J	7.9	J	8.6	J
Beryllium	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Cadmium	3.1		1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Calcium	944	J	717	J	781	J	1,150	J	1,130	J	909	J	811	J	1,160	J
Chromium	2.3	J	2.1	J	2.3	J	2.8		2.1	J	1.8	U	1.8	U	2.2	J
Cobalt	4.6	J	4.0	J	3.3	J	6.4	J	5.1	J	5.1	J	4.6	J	3.3	J
Copper	41.7		90.1		53.5		100		69.9		40.2		162		259	
Iron	2,290		1,160		1,830		1,440		1,270		548		786		512	
Lead	147		94.5		133		44.5		31.4		11.6	J	10.0	U	10.0	U
Magnesium	282	J	217	J	227	J	262	J	228	J	209	J	250	J	205	J
Manganese	45.4		25.8		19.0		27.5		25.1		11.7		18.2	J	11.7	
Nickel	9.8	J	5.0	J	5.0	U	5.0	U	5.0	U	5.2	J	5.0	U	5.0	U
Potassium	262	J	163	J	196	J	196	J	180	J	93.0	U	196	J	151	J
Selenium	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7		19.7	U
Silver	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ
Sodium	746	J	527	J	520	J	651	J	724	J	437	J	471	J	441	J
Thallium	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U
Vanadium	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Zinc	413		145		100		79.1		58.5		33.9		34.8		22.6	

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the required detection limits or quality control criteria were not met.

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TABLE 9 (page 2 of 5)
VALIDATED AIR SAMPLING RESULTS (µg/filter)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NO.:	CC-A-2	CC-A-7	CC-A-12	CC-A-17	CC-A-22	CC-A-27	CC-A-32	CC-A-37
STATION LOCATION:	COLLEGE OF THE CANYONS	FREMONT COUNTY BUSINESS DEVELOPMENT	NEAR BARRICADE	WEST SIDE-EAST UNIT OF DUPLICATE	WEST SIDE-WEST UNIT OF DUPLICATE	CO STATE FOREST SVC SHOPS	TRANSFER YARD	SALVAGE YARD
DATE:	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94	8/17/94
TIME:	1800	1840	1827	1810	1812	1745	1850	1900
Aluminum	442	597	605	458	477	427	503	1,260
Antimony	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U
Arsenic	10.7 U	10.7 U	10.7 U	10.7 U	10.7 U	10.7 U	10.7 U	10.7 U
Barium	8.4 J	8.6 J	10.3 J	7.7 J	7.2 J	8.0 J	8.0 J	21.0 J
Beryllium	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Cadmium	1.6	1.2 U	1.5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Calcium	814 J	887 J	852 J	936 J	819 J	908 J	837 J	3,930
Chromium	2.6	2.0 J	2.3 J	2.4 J	2.5 J	2.0 J	1.8 U	3.5
Cobalt	5.5 J	4.0 J	3.5 J	6.6 J	4.2 J	4.2 J	4.1 J	4.5 J
Copper	23.8	71.4	66.3	110	60.6	38.9	142	225
Iron	930	1,180	2,110	1,040	971	570	696	1,450
Lead	40.2	72.9	123	22.1	13.8	10.6 J	10.0 U	10.0 U
Magnesium	237 J	287 J	278 J	249 J	218 J	240 J	254 J	583 J
Manganese	25.0	21.4	24.1	24.4	22.1	14.1	17.1	32.5
Nickel	9.4 J	5.2 J	6.1 J	5.1 J	6.2 J	5.0 U	5.0 U	5.0 U
Potassium	176 J	204 J	315 J	184 J	159 J	131 J	151 J	302 J
Selenium	19.7 U	19.7 U	19.7 U	19.7 U	19.7 U	19.7 U	19.7 U	19.7 U
Silver	0.95 UJ	0.95 UJ	0.95 UJ	0.95 UJ	0.95 UJ	0.95 UJ	0.95 UJ	0.95 UJ
Sodium	476 J	513 J	588 J	595 J	423 J	471 J	463 J	476 J
Thallium	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U	10.9 U
Vanadium	1.5 U	1.6 J	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	2.4 J
Zinc	289	92.0	92.1	50.9	42.6	31.2	25.8	33.1

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TABLE 9 (page 3 of 5)
VALIDATED AIR SAMPLING RESULTS (µg/filter)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NO.: STATION LOCATION: DATE: TIME:	CC-A-3 COLLEGE OF THE CANYONS 8/18/94 1735		CC-A-8 FREMONT COUNTY BUSINESS DEVELOPMENT 8/18/94 1810		CC-A-13 NEAR BARRICADE 8/18/94 1800		CC-A-18 WEST SIDE-EAST UNIT OF DUPLICATE 8/18/94 1745		CC-A-23 WEST SIDE-WEST UNIT OF DUPLICATE 8/18/94 1747		CC-A-28 CO STATE FOREST SVC. SHOPS 8/18/94 1720		CC-A-33 TRANSFER YARD 8/18/94 1155		CC-A-38 SALVAGE YARD 8/18/94 1830	
Aluminum	350		461		453		389		408		490		1,590		521	
Antimony	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U
Arsenic	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U
Barium	5.8	J	7.8	J	8.2	J	6.7	J	7.0	J	9.4	J	22.3	J	9.2	J
Beryllium	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Cadmium	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Calcium	626	J	800	J	780	J	799	J	716	J	1,050	J	2,550		1,310	
Chromium	1.9	J	2.5		2.1	J	1.8	J	2.5	J	2.5		3.2		2.5	
Cobalt	4.0	J	3.2	J	2.4	J	5.1	J	3.2	J	9.5	J	8.2	J	4.4	J
Copper	21.1		57.9		63.2		69.0		51.1		39.0		117		246	
Iron	848		1,020		1,500		1,050		1,080		703		2,370		657	
Lead	61.6		54.4		92.8		41.3		40.2		10.0	U	18.3		10.0	U
Magnesium	184	J	215	J	214	J	217	J	204	J	238	J	734	J	223	J
Manganese	20.5		21.2		19.4		21.7		21.8		16.9		54.9		12.7	
Nickel	6.7	J	5.6	J	5.9	J	5.0	U	5.1	J	5.0	U	5.0	U	5.0	U
Potassium	151	J	229	J	168	J	151	J	159	J	172	J	495	J	131	J
Selenium	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U
Silver	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ
Sodium	455	J	531	J	392	J	666	J	523	J	445	J	454	J	485	J
Thallium	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U
Vanadium	1.5	U	1.5	U	1.5	U	1.5	U	1.9	J	1.5	U	4.9	J	1.5	U
Zinc	191		86.0		84.3		69.2		69.5		27.2		62.0		33.6	

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TABLE 9 (page 4 of 5)
VALIDATED AIR SAMPLING RESULTS (µg/filter)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NO.:	CC-A-4		CC-A-9		CC-A-14		CC-A-19		CC-A-24		CC-A-29		CC-A-34		CC-A-39	
STATION LOCATION:	COLLEGE OF THE CANYONS		FREMONT COUNTY BUSINESS DEVELOPMENT		NEAR BARRICADE		WEST SIDE-EAST UNIT OF DUPLICATE		WEST SIDE-WEST UNIT OF DUPLICATE		CO STATE FOREST SVC. SHOPS		TRANSFER YARD		SALVAGE YARD	
DATE:	8/23/94		8/23/94		8/23/94		8/23/94		8/23/94		8/23/94		8/23/94		8/23/94	
TIME:	1115		1150		1135		1128		1130		1110		1155		1205	
Aluminum	671		758		826		733		696		841		1,160		1,040	
Antimony	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	21.4	J
Arsenic	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U	21.3	U
Barium	10.4	J	11.7	J	13.7	J	11.3	J	10.6	J	14.2	J	17.7	J	15.7	J
Beryllium	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.30	U
Cadmium	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	2.4	U
Calcium	1,310		1,440		1,410		1,400		1,350		1,740		2,100		336,000	R
Chromium	3.3		3.0		2.7		2.8		2.4	J	3.0		2.9		3.6	U
Cobalt	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.9	J	1.8	U	3.6	U
Copper	21.9		98.8		71.9		99.0		97.7		35.4		134		232	
Iron	833		991		2,290		1,020		1,030		1,090		1,540		1,020	
Lead	16.3		16.7		127		25.7		23.6		13.5		10.0	U	20.0	U
Magnesium	315	J	356	J	358	J	340	J	323	J	403	J	540	J	4,760	R
Manganese	26.9		27.5		32.3		26.6		26.2		31.8		43.6		41.8	
Nickel	5.1	J	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.2	J	10.1	U
Potassium	389	J	504	J	493	J	418	J	432	J	518	J	621	J	671	J
Selenium	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	39.4	U
Silver	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	1.9	UJ
Sodium	317	J	448	J	408	J	325	J	303	J	379	J	422	J	415	J
Thallium	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	21.8	U
Vanadium	2.2	J	3.0	J	2.7	J	3.0	J	2.4	J	2.8	J	3.7	J	5.6	J
Zinc	97.5		66.5	J	153		71.1	J	68.3	J	45.7	J	47.2	J	52.0	J

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TABLE 9 (page 5 of 5)
VALIDATED AIR SAMPLING RESULTS (µg/filter)
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

STATION NO.: STATION LOCATION: DATE: TIME:	CC-A-5 COLLEGE OF THE CANYONS 8/24/94 1125		CC-A-10 FREMONT COUNTY BUSINESS DEVELOPMENT 8/24/94 1200		CC-A-15 NEAR BARRICADE 8/24/94 1145		CC-A-20 WEST SIDE-EAST UNIT OF DUPLICATE 8/24/94 1130		CC-A-25 WEST SIDE-WEST UNIT OF DUPLICATE 8/24/94 1135		CC-A-30 CO STATE FOREST SVC. SHOPS 8/24/94 1105		CC-A-35 TRANSFER YARD 8/24/94 1210		CC-A-40 SALVAGE YARD 8/24/94 1220	
Aluminum	521		543		691		562		441		811		961		542	
Antimony	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U	9.0	U
Arsenic	10.7	U	10.7	U	11.9	J	10.7	U	10.7	U	10.7	U	10.7	U	10.7	U
Barium	8.4	J	8.1	J	12.9	J	9.0	J	8.1	J	13.8	J	16.0	J	10	J
Beryllium	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
Cadmium	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Calcium	867	J	827	J	929	J	960	J	913	J	1,510		1,690		1,660	
Chromium	2.6		2.2	J	1.8	U	1.8	U	1.8	U	2.0	J	2.9		3.6	
Cobalt	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	3.3	J	1.8	U	1.8	U
Copper	16.3		49.0		52.9		105		58.5		43.0		119		185	
Iron	799		798		2,930		974		924		1,080		1,650		692	
Lead	23.3		27.4		197		39.6		33.9		10.0	U	21.3		10.0	U
Magnesium	249	J	218	J	304	J	251	J	219	J	375	J	472	J	274	J
Manganese	26.2		17.3		30.9		21.0		20.0		28.1		42.9		17.6	
Nickel	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Potassium	279	J	386	J	457	J	393	J	357	J	425	J	500	J	346	J
Selenium	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U	19.7	U
Silver	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ	0.95	UJ
Sodium	262	J	274	J	306	J	281	J	289	J	282	J	296	J	273	J
Thallium	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U	10.9	U
Vanadium	1.8	J	2.5	J	2.7	J	2.2	J	2.0	J	3.0	J	3.4	J	1.9	J
Zinc	188		57.6	J	144		105		95.6		43.5	J	48.4	J	32.6	J

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TABLE 10

CANON CITY HI VOL VOLUME CALCULATION SPREADSHEET 108 9410 014 sidcalcs.WK3

HI-VOL	CALIBRATION COEFFICIENTS	
1	0.7765	-0.5538
2	0.58886	0.028114
3	0.610554	0.054506
4	0.623569	0.017661
5	0.611638	0.079183
6	0.638345	-0.08149
7	0.629185	-0.01299
8	0.614168	-0.02454

(CALCULATE THE AVERAGE TEMPERATURE FOR EACH DAY)

DATE	TEMP	BP
8/16/94	24.89	831.05
8/17/94	25.47	831.29
8/18/94	25.47	831.29
8/23/94	25.55	833.01
8/24/94	26.02	832.89

NOTE: The calculated Qstd is less than 50 cfm due to the average temperature for the 24 hour period being lower than the temperature at which the flow rate settings were calculated

(CALCULATE THE AVERAGE FLOW RATE PER SAMPLER PER DAY)

CONTAMINANT CONCENTRATIONS

SAMPLER	SAMPLE #	LOCATION	INITIAL PRESSURE (DELTA P)	FINAL PRESSURE (DELTA P)	AVERAGE PRESSURE (DELTA P)	AVERAGE FLOW RATE Qr CMM	Qr CFM	TA K	PA MMHg	Qstd CMM	TIME MIN	V STD M(3)	Qstd CFM	Pb ug	Pb ug/m(3)	Zn ug	Zn ug/m(3)
8/16/94																	
1	CC-A-1	E	5.33	3.90	4.62	1.293	45.65	297.89	623.34	1.428	1421.1	2028.78	50.40	147	0.072	413	0.204
2	CC-A-6	NE	4.23	4.30	4.27	1.244	43.93	297.89	623.34	1.374	1421.1	1952.04	48.49	94.5	0.048	145	0.074
3	CC-A-11	N	3.76	3.50	3.63	1.218	42.99	297.89	623.34	1.344	1440	1935.95	47.46	133	0.069	100	0.052
4	CC-A-16	NW	3.80	3.80	3.80	1.233	43.54	297.89	623.34	1.361	1431.8	1949.35	48.07	44.5	0.023	79.1	0.041
5	CC-A-21	DUPLICATE	3.60	3.35	3.47	1.219	43.03	297.89	623.34	1.346	1432.2	1927.33	47.51	31.4	0.016	58.5	0.030
6	CC-A-26	ENE FAR	4.28	5.00	4.64	1.294	45.67	297.89	623.34	1.428	1455.2	2078.13	50.42	11.6 B	0.006	33.9	0.016
7	CC-A-31	N FAR	3.96	4.10	4.03	1.250	44.13	297.89	623.34	1.380	1419	1958.35	48.72	10 U	BDL	34.8	0.018
8	CC A-36	W FAR	4 23	4.30	4.27	1.244	43.91	297.89	623.34	1.373	1419.3	1948.96	48.48	10 U	BDL	22.6	0.012
8/17/94																	
1	CC-A-2	E	5.52	5.00	5.26	1.379	48.67	298.47	623.52	1.523	1393	2121.92	53.78	40.2	0.019	289	0.136
2	CC-A-7	NE	4.46	4.30	4.38	1.261	44.50	298.47	623.52	1.393	1421.1	1979.22	49.17	72.9	0.037	92	0.046
3	CC-A-12	N	3.98	3.80	3.89	1.259	44.44	298.47	623.52	1.391	1435	1995.73	49.10	123	0.062	92.1	0.046
4	CC-A-17	NW	4.04	4.30	4.17	1.291	45.58	298.47	623.52	1.426	1407.6	2007.88	50.36	22.1	0.011	50.9	0.025
5	CC-A-22	DUPLICATE	3.80	3.70	3.75	1.264	44.61	298.47	623.52	1.396	1408	1965.81	49.29	13.8	0.007	42.6	0.022
6	CC-A-27	ENE FAR	4.49	4.80	4.65	1.294	45.69	298.47	623.52	1.430	1414.8	2023.26	50.49	10.6 B	0.005	31.2	0.015
7	CC-A-32	N FAR	4.17	4.20	4.19	1.274	44.98	298.47	623.52	1.408	1414.8	1991.78	49.70	10 U	BDL	25.8	0.013
8	CC-A-37	W FAR	4.46	4.00	4.23	1.239	43.73	298.47	623.52	1.369	1416.2	1938.14	48.32	10 U	BDL	33.1	0.017
8/18/94																	
1	CC-A-3	E	5.52	4.00	4.76	1.313	46.35	298.47	623.52	1.451	1458	2114.94	51.21	61.6	0.029	191	0.090
2	CC-A-8	NE	4.46	4.30	4.38	1.261	44.50	298.47	623.52	1.393	1376.4	1916.97	49.17	54.4	0.028	86	0.045
3	CC-A-13	N	3.98	4.70	4.34	1.326	46.83	298.47	623.52	1.466	1452	2128.06	51.74	92.8	0.044	84.3	0.040
4	CC-A-18	NW	4.04	3.80	3.92	1.252	44.21	298.47	623.52	1.384	1390.2	1923.53	48.85	41.3	0.021	69.2	0.036
5	CC-A-23	DUPLICATE	3.80	3.70	3.75	1.264	44.61	298.47	623.52	1.396	1390	1940.68	49.29	40.2	0.021	69.5	0.036
6	CC-A-28	ENE FAR	4.49	5.20	4.85	1.324	46.73	298.47	623.52	1.462	1443	2110.31	51.63	10 U	BDL	27.2	0.013
7	CC-A-33	N FAR	4.17	4.00	4.09	1.259	44.44	298.47	623.52	1.391	1441	2004.03	49.10	18.3	0.009	62	0.031
8	CC-A-38	W FAR	4.46	4.50	4.48	1.275	45.03	298.47	623.52	1.409	1438	2026.43	49.75	10 U	BDL	33.6	0.017
8/23/94																	
1	CC-A-4	E	5.55	4.50	5.03	1.348	47.60	298.55	624.81	1.488	1442	2146.01	52.54	16.3	0.008	97.5	0.045
2	CC-A-9	NE	4.48	3.80	4.14	1.226	43.29	298.55	624.81	1.354	1459.6	1975.84	47.79	16.7	0.008	65.5 J	0.033 J
3	CC-A-14	N	4.00	3.20	3.60	1.213	42.82	298.55	624.81	1.339	1451	1942.87	47.27	127	0.065	153	0.079
4	CC-A-19	NW	4.07	3.60	3.84	1.239	43.74	298.55	624.81	1.368	1429	1954.20	48.28	25.7	0.013	71.1 J	0.036 J
5	CC-A-24	DUPLICATE	3.82	2.90	3.36	1.200	42.38	298.55	624.81	1.325	1431	1896.16	46.78	23.6	0.012	68.3 J	0.036 J
6	CC-A-29	ENE FAR	4.52	4.20	4.36	1.251	44.18	298.55	624.81	1.381	1432	1978.23	48.77	13.5	0.007	45.7 J	0.023 J
7	CC-A-34	N FAR	4.19	3.70	3.95	1.237	43.66	298.55	624.81	1.365	1451	1980.92	48.20	10 U	BDL	47.2 J	0.024 J
8	CC-A-39	W FAR	3.95	3.00	3.48	1.120	39.55	298.55	624.81	1.237	1454	1798.26	43.66	20 U	BDL	52 J	0.029 J
8/24/94																	
1	CC-A-5	E	5.50	4.60	5.05	1.351	47.71	299.02	624.72	1.493	1422	2123.22	52.71	23.3	0.011	188	0.089
2	CC-A-10	NE	4.50	3.80	4.15	1.228	43.34	299.02	624.72	1.356	1419	1924.80	47.89	27.4	0.014	57.6 J	0.030 J
3	CC-A-15	N	4.00	3.80	3.90	1.260	44.49	299.02	624.72	1.392	1425	1984.17	49.16	197	0.099	144	0.073
4	CC-A-20	NW	4.10	4.20	4.15	1.288	45.47	299.02	624.72	1.423	1421	2022.12	50.24	39.6	0.020	105	0.052
5	CC-A-25	DUPLICATE	3.80	3.30	3.55	1.232	43.48	299.02	624.72	1.361	1420	1932.25	48.04	33.9	0.018	95.6	0.049
6	CC-A-30	ENE FAR	4.50	4.70	4.60	1.288	45.46	299.02	624.72	1.423	1426	2028.66	50.23	10 U	BDL	43.5 J	0.021 J
7	CC-A-35	N FAR	4.20	3.90	4.05	1.253	44.24	299.02	624.72	1.385	1431	1981.41	48.88	21.3	0.011	48.4 J	0.024 J
8	CC-A-40	W FAR	4.50	3.50	4.00	1.204	42.50	299.02	624.72	1.330	1434	1907.26	46.96	10 U	BDL	32.6 J	0.017 J

TABLE 10 (page 2 of 2)
CANON CITY HI-VOLUME CALCULATION SPREADSHEET
COLLEGE OF THE CANYONS SMELTER SITE
TDD #T08-9410-014

DEFINITIONS

Qr	Measured flow rate
Qstd	Flow rate at standard temperature and pressure
CFM	Cubic feet per minute
CMM	Cubic meters per minute
Ta (K)	Temperature in degrees Kelvin
Pa (mmHg)	Atmospheric pressure in millimeters of mercury
V	Volume of air
m^3	Cubic meters
Delta P	Manometer differential in inches of water
m	Slope of hi-vol unit calibration curve
b	Intercept of hi-vol unit calibration curve

STANDARD CALCULATIONS

Qr(cmm)	=	m (average delta P) + b
Qstd	=	$Qr/[(Pa/Ta) \times (298K/760mmHg)]^{1/2}$
Vstd (m^3)	=	Qstd x Time (minutes)
Concentration ($\mu g/m^3$)	=	Contaminant (μg)/Vstd(m^3)

TABLE 11

canondir.wk3

T08-9410-014

COLLEGE OF THE CANONS WIND DIRECTION VS. LOADING

	SAMPLE #	LOCATION	Pb ug/m(3)	PB ug	Zn ug	Zn ug/m(3)
8/16/94	**WIND FROM WSW, SW (Windy)**					
COLLEGE	CC-A-1	DOMINANT	0.072	147	413	0.204
BUS.PARK	CC-A-6	DOMINANT	0.048	94.5	145	0.074
MARIPOSA	CC-A-11	DOMINANT	0.069	133	100	0.052
RED PILES	CC-A-16	SECONDARY	0.023	44.5	79.1	0.041
RED PILES	CC-A-21	SECONDARY	0.016	31.4	58.5	0.030
FOREST SVC	CC-A-26	SECONDARY	0.006	11.6 B	33.9	0.016
DUMP	CC-A-31	BACKGROUND	BDL	10 U	34.8	0.018
AUTO SLVG	CC-A-36	BACKGROUND	BDL	10 U	22.6	0.012
8/18/94	**WIND FROM WSW, SW (Moderate)**					
COLLEGE	CC-A-2	DOMINANT	0.019	40.2	289	0.136
BUS.PARK	CC-A-7	DOMINANT	0.037	72.9	92	0.046
MARIPOSA	CC-A-12	DOMINANT	0.062	123	92.1	0.046
RED PILES	CC-A-17	SECONDARY	0.011	22.1	50.9	0.025
RED PILES	CC-A-22	SECONDARY	0.007	13.8	42.6	0.022
FOREST SVC	CC-A-27	SECONDARY	0.005	10.6 B	31.2	0.015
DUMP	CC-A-32	BACKGROUND	BDL	10 U	25.8	0.013
AUTO SLVG	CC-A-37	BACKGROUND	BDL	10 U	33.1	0.017
8/19/94	**WIND FROM SW, WSW (Moderate)**					
COLLEGE	CC-A-3	SECONDARY	0.029	61.6	191	0.090
BUS.PARK	CC-A-8	DOMINANT	0.028	54.4	86	0.045
MARIPOSA	CC-A-13	DOMINANT	0.044	92.8	84.3	0.040
RED PILES	CC-A-18	DOMINANT	0.021	41.3	69.2	0.036
RED PILES	CC-A-23	DOMINANT	0.021	40.2	69.5	0.036
FOREST SVC	CC-A-28	DOMINANT	BDL	10 U	27.2	0.013
DUMP	CC-A-33	PERIPHERIAL	0.009	18.3	62	0.031
AUTO SLVG	CC-A-38	BACKGROUND	BDL	10 U	33.6	0.017
8/23/94	**WIND FROM NE, WSW (Moderate)**					
COLLEGE	CC-A-4	SECONDARY	0.008	16.3	97.5	0.045
BUS.PARK	CC-A-9	SECONDARY	0.008	16.7	65.5 J	0.033 J
MARIPOSA	CC-A-14	SECONDARY	0.065	127	153	0.079
RED PILES	CC-A-19	PERIPHERIAL	0.013	25.7	71.1 J	0.036 J
RED PILES	CC-A-24	PERIPHERIAL	0.012	23.6	68.3 J	0.036 J
FOREST SVC	CC-A-29	PERIPHERIAL	0.007	13.5	45.7 J	0.023 J
DUMP	CC-A-34	BACKGROUND	BDL	10 U	47.2 J	0.024 J
AUTO SLVG	CC-A-39	BACKGROUND	BDL	20 U	52 J	0.029 J
8/24/94	**WIND FROM SW, E (Strong)**					
COLLEGE	CC-A-5	SECONDARY	0.011	23.3	188	0.089
BUS.PARK	CC-A-10	DOMINANT	0.014	27.4	57.6 J	0.030 J
MARIPOSA	CC-A-15	DOMINANT	0.099	197	144	0.073
RED PILES	CC-A-20	DOMINANT	0.020	39.6	105	0.052
RED PILES	CC-A-25	DOMINANT	0.018	33.9	95.6	0.049
FOREST SVC	CC-A-30	DOMINANT	BDL	10 U	43.5 J	0.021 J
DUMP	CC-A-35	PERIPHERIAL	0.011	21.3 U	48.4 J	0.024 J
AUTO SLVG	CC-A-40	SECONDARY	BDL	10 U	32.6 J	0.017 J

APPENDIX A

SAMPLING ACTIVITIES REPORT

SAMPLING ACTIVITIES REPORT
COLLEGE OF THE CANYONS SMELTER SITE
CANON CITY, COLORADO
TDD #T08-9410-014

Prepared for:

U.S. Environmental Protection Agency
Region VIII, Denver, Colorado
Mike Zimmerman, On-Scene Coordinator
Pat Smith, Site Assessment Manager

Prepared by:

Ecology and Environment, Inc.
Technical Assistance Team
D'Arcy Straub, Project Assistant
Scott Keen, Project Manager

Date Submitted: February 21, 1995

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SAMPLING ACTIVITIES REPORT
COLLEGE OF THE CANYONS SMELTER SITE
CANON CITY, COLORADO
TDD #T08-9406-008

1.0 INTRODUCTION

This Sampling Activities Report (SAR) was prepared by the Ecology and Environment, Inc., Technical Assistance Team (TAT), to partially fulfill the requirements of Technical Direction Document #T08-9406-008, issued by the U.S. Environmental Protection Agency (EPA). This SAR is a follow-up to the site assessment conducted at the College of the Canyons Smelter Site in Canon City, Colorado, and provides a summary of field activities conducted on the site pursuant to the Sampling QA/QC Work Plan, which was submitted to the EPA on August 12, 1994.

Air, water, soil, and sediment samples were collected at the College of the Canyons Smelter Site to accomplish two objectives:

1. to obtain the essential data needed to rank the site using the Hazardous Ranking System (HRS) by characterizing the waste source and the pathways by which the waste has traveled if a release from the waste source has occurred; and

2. to determine if threats to human health or impacts to the environment exist at the site. This objective will be accomplished through characterization of the waste source and pathways in combination with target population information.

High volume air sampling (hi-vol) was used to measure the metal content of suspended particles in the air, thus confirming whether or not metals are being released to the air pathway from the waste source. TAT members Sullivan and Straub conducted the hi-vol sampling from August 16 to August 19, 1994, and from August 23 to August 25, 1994. These air samples, collected for analysis of ICP metals using QA level II, were delivered to CKY Laboratories in Wheat Ridge, Colorado on August 22 and 26, 1994.

Soil samples were collected to characterize the waste source. Sediment samples were collected primarily to characterize the migration of the waste source via the water

pathway. Soil and sediment samples for field screening and HRS scoring were collected by TAT members Alexander and Mayer from August 23 to August 25, 1994. On August 31, Alexander and Sullivan collected sediment samples. The field screening samples will be analyzed by a TN Technologies Spectrace 9000 XRF spectrometer. The HRS samples were delivered to CKY Laboratories on September 13, 1994, for cyanide and/or Hazardous Substance List (HSL) metals using QA level II criteria.

In conjunction with HRS, surface water samples were collected to determine if releases from the waste source were entering the Arkansas River. There are three ditches carrying run-off from the site. These ditches join Forked Gulch at a point north of the site. Forked Gulch then continues to flow north approximately 1 mile, where it enters the Arkansas River. Sampling along the water pathway was conducted by TAT members Alexander and Sullivan on August 31, 1994. The samples were delivered to CKY Laboratories on September 13, 1994, for HSL metals analysis using QA level II criteria.

Other on-site field activities included surveying and photodocumentation. TAT members Sullivan and Straub conducted the surveying, and TAT members Alexander, Mayer, Straub, and Sullivan were responsible for photodocumentation activities.

2.0 SITE DESCRIPTION

2.1 Site Location and History

The College of the Canyons Smelter site is located 1.5 miles south of the Arkansas River in Canon City, Colorado. The site is considered a homogenous area and encompasses approximately 7 acres. The coordinates of the smelter stack, which remains standing, are 38° 24' 43" North latitude and 105° 14' 58" West longitude. The legal site description is the northwest corner of Section 8, Township 19 South, Range 70 West (Figure 1).

2.2 Background Information and Past History

The College of the Canyons Smelter Site operated under the direction of the New Jersey Zinc Company. The smelter processed ore, which was particularly rich in zinc and lead, obtained from the Eagle Mine and Mill in Gilman, Colorado. The smelter operated from

1902 to 1968, and was capable of processing 90 tons of ore per day. After the smelter's closure in 1968, the site was purchased by the Canon City Chemical Company, which used the mineral-rich tailings as a soil additive. The operations of the chemical company continued until as recently as 1991.

In May 1991, the Emergency Response Branch (ERB) of the EPA removed 155 drums from the site because of potential threats to the environment. At that time, the EPA did not address contaminated soils, waste rock, and tailings from smelter activities. In June 1994, the EPA ERB and the TAT performed a reconnaissance survey of the smelter site, which included X-ray fluorescence analyses of 17 soil samples. In a majority of the samples collected from on-site soils and waste piles, analyses revealed elevated concentrations of several metals, including cadmium, lead, mercury, and zinc.

3.0 SAMPLING ACTIVITIES

3.1 Air Sampling

TAT members Sullivan and Straub conducted the hi-vol sampling. Eight hi-vol stations were established (Figure 2) to determine a possible release via the air pathway. Five of the eight hi-vol stations were within the zero to 1/4-mile radius of the site. Three of the stations were just north of the site, and two were situated side-by-side to obtain duplicate samples for QA/QC. The other two stations were located at the College of the Canyons Campus and the Fremont County Business Development Complex. The remaining three hi-vol stations were located at businesses or operations within the 1/4- to 1/2-mile radius of the site. These businesses or operations were the Colorado State Forest Service Shops, Fremont Auto Salvage, and the BFH Transfer Station.

The initial step in the operation of the hi-vols was calibration of the units with a manometer. Once calibrated, air flow through the units could be adjusted or calculated based on a manometer reading. Important in the calibration and adjustment of the hi-vol units is the accurate measurement of meteorological conditions. For this reason, a portable meteorological station, capable of measuring temperature, humidity, barometric pressure, and wind direction and speed, was erected on site. The meteorological station is capable of continuous readings that can be stored and downloaded to a computer at a later time.

The hi-vol units were operated for 5 days, drawing 50 cubic feet of air per minute (cfm); however, the 5-day operational period was suspended after 3 days due to a heavy rain storm on August 19, 1994. The precipitation was heavy enough to cause street flooding in Canon City. Had hi-vol operations continued, results would have shown a drastically reduced number of suspended particles in the air for the next 24 to 48 hours. Air sampling resumed on August 23, 1994, and concluded on August 25, 1994, thus completing the 5-day sampling period.

The suspended particles collected were drawn into the hi-vol unit and trapped by Whatman 41 cellulose 8" x 10" filters. To ensure that the filters would not be cross-contaminated, dedicated gloves were used to install and remove the filters, and each filter was stored in a dedicated envelope. Manometer readings were taken at the beginning and end of each sampling period. Before a new sampling period was begun, the hi-vol units were decontaminated with a damp cloth to remove particles from the previous sampling period. The hi-vol units were also secured to prevent their being opened, which would potentially contaminate the filters.

A sampling period was defined as 1 day; consequently, five filters were used in and collected from each of the eight hi-vol stations over the course of the 5-day total sampling period. The used filters were delivered to CKY for ICP metals analysis. Table 1 contains additional information about air sampling activities.

3.2 Soil Sampling

From August 23 to August 25, 1994, fifty-five soil samples were collected by TAT members Alexander and Mayer (Figure 3). Sampling was biased, but a sufficiently large number of samples was collected to ensure a dependable representation of the site. All soil samples were collected with dedicated teflon scoops and were placed into plastic bags that were then secured with tape.

Of the 55 soil samples, 10 were split and subsequently delivered to CKY Laboratories for HSL metals analysis using QA level II criteria. Figure 4 illustrates the locations from which the split samples were collected. The 10 samples selected for metals analysis were pre-screened by a TN Technology XRF Lead Analyzer, which is capable of analyzing for the

following elements: iron, copper, zinc, lead, arsenic, and manganese. The samples selected for analysis contained a broad spectrum of metal concentrations.

Most of the soil samples were surface samples, although five samples (CC-XRF-041 through CC-XRF-045) were collected with a hand auger from a depth of 18" below ground surface (bgs). Four of these samples were split and delivered to CKY Laboratories for HSL metals and cyanide analyses using QA level II criteria. These four samples and their corresponding splits are as follows: CC-XRF-41 (CC-SO-10); CC-XRF-42 (CC-SO-11); CC-XRF-43 (CC-SO-12); and CC-XRF-45 (CC-SO-13).

In addition to laboratory analyses, all soil samples will be analyzed for 21 metals with the Spectrace 9000 XRF spectrometer. The analyses will be conducted under QA Level I screening criteria.

The types of soil samples collected can be categorized into four groups:

- those obtained from tailings, obvious because of their dark red, grayish, or orange color;
- those collected from around building foundations, such as in the area believed to the location of the assay office;
- those obtained from locations where the soil appeared to be normal, or uncontaminated; and
- sample (CC-XRF-015/CC-SO-07), obtained from north of the site near the intersection of Mariposa and Valley roads.

Table 1 contains additional information about soil samples.

3.3 Sediment Sampling

TAT members Alexander and Sullivan collected 30 sediment samples on August 31, 1994 (Figure 5). Three ditches carrying run-off from the site join Forked Gulch just north of the site; Forked Gulch then continues north to the Arkansas River. From an area just north of the site to the Arkansas River, Forked Gulch is a potential wetlands area.

Samples were obtained from the three on-site ditches, from Forked Gulch, and from the Arkansas River. Sample CC-XRF-112, collected upstream in the Arkansas River, will serve as a background sample. Samples CC-XRF-137 and CC-XRF-139 were collected upstream of the site from two of the three ditches. These samples may also serve as background samples; however, they may not be clean because they were collected in close proximity to the site.

The procedures with which the sediments were collected and selected for analysis were identical to those used for the soil sampling procedures. Of the 30 sediment samples, 16 were split (Figure 6) and selected for HSL metals and cyanide analyses using QA Level II criteria at CKY laboratories. In addition to the QA level II analyses, the 30 samples will be analyzed for 21 metals using QA level I criteria with the Spectrace 9000 XRF spectrometer.

Between August 23 and August 25, 1994, TAT members Alexander and Mayer collected four additional sediment samples (CC-XRF-104 through CC-XRF-104). These samples were not collected from the ditches, but from on-site locations where evidence of standing water existed. These samples will only be analyzed by the Spectrace 9000 XRF spectrometer under QA level I criteria. Table 1 contains additional information about sediment samples.

3.4 Surface Water Sampling

The majority of surface water samples were collected by TAT members Alexander and Sullivan during a rainfall event on August 31, 1994. Sample collection began at the Arkansas River and continued upstream into the drainage ditch to just north of Valley Road (Figure 7). TAT members Alexander and Mayer collected water samples CC-SW-18 and CC-SW-19 on August 23 and 25, 1994, respectively. These two samples were collected from standing puddles of water outside the drainage ditches. Surface water sample CC-SW-02, collected upstream in the Arkansas River, is the background sample.

The pH of the surface water samples was field screened with pH paper. Samples CC-SW-16 through CC-SW-19 possessed a relatively acidic pH of 2. Samples CC-SW-12 and CC-SW-13 were mildly acidic with a pH of 6, and the remaining samples exhibited a pH of 7.

The 19 surface water samples were collected in 1-liter polyethylene containers, preserved to pH 2 with nitric acid, and stored on ice. The samples were then delivered to CKY Laboratories where they will be analyzed for HSL metals using QA level II criteria. Table 1 contains additional information about surface water samples.

3.5 Ground Water Pathway

Ground water samples were not collected from ground water wells. USGS data indicate shallow alluvial deposits on top of bedrock in the area of the site and much exposed bedrock closer to the Arkansas River. Shallow ground water from the area of the site would likely flow north/northeast toward the Arkansas River and emerge where the bedrock is exposed. Shallow ground water was observed seeping from several points along Forked Gulch; samples CC-SW-07 and CC-SW-11 were collected from these points.

3.6 Surveying

A surveying station was established at the northwest corner of section 8. The coordinates of all soil samples and the hi-vol stations on or near the site were obtained with the surveying station. Because of time restrictions and the distance over which the sediment and surface water samples were obtained, coordinates for these sample locations were not obtained. In addition to sample locations, site structures and site topographic features were also surveyed to enable creation of a site drawing. However, the site boundaries indicated on each sampling map are approximate.

3.7 Non-Sampling Data Collection

It is unlikely that drinking water near the site has been contaminated by the site. Although applications and permits for wells near the site exist, only one well, located approximately 3/4 mile north/northeast of the site, is hydrologically downgradient from the site. Because of the availability of municipal water, it is unlikely that ground water is used for drinking water within 2 miles of the site.

There are no residences within 1/2 mile of the site; however, there are several businesses that support 40 to 55 workers within 1/4 mile of the site, and 175 to 220 workers within

1/2 mile of the site. There are few residences within a 1-mile radius of the site. Much of Canon City is located within a 4-mile radius of the site. As many as 12,000 to 15,000 people, based on population densities of Canon City, Lincoln Park, and Brookside, reside within a 1/2-mile to 4-mile radius of the site.

4.0 FIELD OBSERVATIONS

It is obvious that this site served as an ore processing plant. There is a distinctive smell to the site, which is particularly strong near the tailings. There are numerous tailing piles on the site, easily recognized by their dark red, orange, and/or gray colors. Pyrite crystals are abundant on the site, which is indicative of and consistent with the low pH of the standing water. The sulfur in the pyrite is oxidized to sulfuric acid, consequently lowering the pH of the water. The surface of the tailings is hard and crusty when dry. Although the wind was blowing during sampling periods, it did not appear to create a significant amount of dust.

In accordance with criteria outlined in the Code of Federal Regulations, Forked Gulch may be considered a wetland. Wetlands are comprised of areas saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. During a walk-through of Forked Gulch on August 25, 1994, TAT members Alexander and Mayer observed water seeping into Forked Gulch. Water was observed seeping from sample locations CC-SW-13 and CC-SW-14 to the Arkansas River; the amount of seepage generally increased as Forked Gulch continued north toward the Arkansas River. Given that substantial precipitation had not fallen in at least 48 hours, it can be reasonably concluded that the area near Forked Gulch is saturated with ground water. This declaration is further supported by the types of vegetation growing near Forked Gulch. As illustrated in several on-site photographs, the most obvious sign of soil saturated with water is the presence of phreatophytic cottonwood trees.

5.0 SUMMARY OF SAMPLE ANALYSIS, VALIDATION, AND REPORTING

The results of the air sampling analyses have been received from CKY Laboratories, and the HSL metals and cyanide results are expected from CKY no later than October 7, 1994. The data will be validated according to the National Functional Guidelines, and an Analytical Results Report will be submitted to the EPA shortly thereafter.

APPENDIX B
SI DATA SUMMARY

SI DATA SUMMARY

Site Name College of the Canyons Smelter Site **EPA Region** VIII **Date:** April 7, 1995

Contractor Name or State Office and Address Ecology and Environment, Inc., 1776 So. Jackson St., Suite 200, Denver, Colorado 80210

GENERAL SITE INFORMATION

1. **CERCLIS ID No.** COD116263781

   Address 1.5 miles So. of Canon City on Forge Rd. City Canon City

   County Fremont State CO Zip Code 81212 Cong.Dist. _____

2. **Owner name** Several **Operator name** Formerly New Jersey Zinc Co.

   Owner address _____ Operator address _____

   City _____ State _____ City _____ State _____

3. **Type of ownership** (check all that apply):
   ■ Private ☐ Federal/Agency ☐ State ☐ County ■ Municipal
   ☐ Other _____ Reference(s) _____

4. **Approximate size of property:** 60 acres Reference(s) Sampling Analysis Plan (SAP)

5. **Latitude:** 38 ° 24 ′ 43 ″ Reference(s) Sampling Activities Report (SAR)
   Longitude: 105 ° 14 ′ 58 ″

6. **Site status:** ☐ Active ■ Inactive ☐ Unknown Reference(s) SAP

7. **Years of operation:** From 1902 to 1968 Reference(s) SAP

8. **Previous investigations:**

Type	Agency/State/Contractor	Date	
Response	EPA/ERB	5/91	Reference(s) SAP
			Reference(s)
			Reference(s)
			Reference(s)

WASTE SOURCE INFORMATION

1. **Waste source types** (check all that apply)

- ☐ Constituent
- ☐ Wastestream (type) _____
- ☐ Landfill
- ☐ Drums
- ■ Contaminated soil
- ☐ Land treatment
- ☐ Tanks or non-drum containers (type) _____
- ■ Pile (type) Tailings
- ☐ Surface impoundment (buried)
- ☐ Surface impoundment (backfilled)
- ☐ Other _____

Reference(s) SAP; Analytical Results Report (ARR)

2. ***Types of wastes*** (check all that apply)

- ☐ Organic chemicals
- ☐ Inorganic chemicals
- ☐ Municipal wastes
- ☐ Radionuclides
- ■ Metals
- ☐ Pesticides/Herbicides
- ☐ Solvents
- ■ Other Mining waste

Reference(s) SAP; ARR

3. **Summarize the history of waste disposal operations:**

From 1902 until 1968, the New Jersey Zinc Company operated a smelter on the site. This smelter processed ore from the Eagle Mine near Gilman, Colorado. The ore from this mine was particularly rich in zinc and lead. The tailings from this operation created a hazardous waste source. The elements on the toxicity characteristics list that are present in the waste source are lead, cadmium, mercury, and arsenic.

Reference(s) SAP

4. **Source characterization** (attach pages to show quantity and calculations)

Source 1 name: Soil Source type: Contaminated Soil

Describe source: Soil contaminated with heavy metals.

Ground water migration containment: None

Surface water migration containment: None

Air migration (gas and migration) containment: None

Physical state of wastes: ☐ Liquid ■ Solid ☐ Sludge/Slurry ☐ Gas ☐ Unknown
Constituent quantity of hazardous substances: _____ (specify units)
Wastestream quantity containing hazardous substances: (specify units)
Volume of source (yd^3): _____ Area of source (ft^2): 50,000

Hazardous substances associated with source 1:

Lead	Mercury	
Arsenic	Copper	
Cadmium	Zinc	

Reference(s) ARR

Source 2 name: Piles Source type Tailings Pile

Describe source: Piles created by smelting plant. Piles are rich in heavy metals.

Ground water migration containment: None

Surface water migration containment: None

Air migration (gas and migration) containment: None

Physical state of wastes: ☐ Liquid ■ Solid ☐ Sludge/Slurry ☐ Gas ☐ Unknown
Constituent quantity of hazardous substances: _____ (specify units)
Wastestream quantity containing hazardous substances: (specify units)
Volume of source (yd^3): _____ Area of source (ft^2): 250,000

Hazardous substances associated with source 2:

Lead	Mercury	
Arsenic	Copper	
Cadmium	Zinc	

Reference(s) ARR

---

5. Description of removal or remedial activities

If a removal has occurred, identify the removal authority and describe the activities. Specify the date(s) of the removal.

There has been no removal to date.

Reference(s) _____

GROUND WATER INFORMATION

1. **Ground water drinking water use within 4 miles of site sources:**

   ☐ Municipal ☐ Private ☐ Both ■ No Drinking Water Use

   Reference(s) SAP

2. **Is ground water contaminated?**

   ☐ Yes ☐ No ☐ Uncertain but likely ■ Uncertain but not likely
   ☐ Additional sampling required
   Is analytical evidence available? ☐ Yes ■ No Reference(s) SAP, ARR

3. **Is ground water contamination attributable to the site?**
   ☐ Yes ■ No ☐ Additional sampling required Reference(s) SAP, ARR

4. **Are drinking water wells contaminated?**
   ☐ Yes ☐ No ☐ Uncertain but likely ■ Uncertain but not likely
   ☐ Additional sampling required
   Is analytical evidence available? ☐ Yes ■ No Reference(s) SAP, ARR

5. **Net precipitation** (HRS Section 3.1.2.2): 4.6 inchesReference(s) Water Data Archives

6. **County avg. number of persons per residence:** 2.4 Reference(s) 1990 Census

7. **Discuss general stratigraphy underlying the site. Attach sketch of stratigraphic column.**

   The site is on Quaternary alluvial soils underlain by Pierre shale.

8. **Using Table GW-1 (next page), summarize geology underlying the site (starting with formation #1 as closest to ground surface). Indicate if formation is interconnected with overlying formation.**

TABLE GW-1: SITE GEOLOGY

Name of Formation	Interconnect ? (Yes/No)	Type of Material	Average Thickness (ft)	Hydraulic Conductivity (Cm/Sec)	Used for Drinking Water?
1. Quaternary alluvium	Yes	Alluvium	25	10^{-2}	No
2. Raton sandstone	Yes	Sandstone	375	10^{-4}	No
3. Vermejo sandstone	Yes	Sandstone	50	10^{-4}	No
4. Trinidad sandstone	Yes	Sandstone	70	10^{-4}	No
5. Pierre shale	No	Shale	3,900	10^{-6}	No

Reference(s) U.S. Geological Survey data base/maps

9. **Does a karst aquifer underlie any site source?**
☐ Yes ■ No Reference(s) SAP

Depth to top of aquifer: App. 20 feet **Elevation:** App. 5,370 Reference(s) Well log permits

10. **In the table below, enter the number of people obtaining drinking water from wells located within 4 miles of the site.** For each aquifer, attach population calculation sheets. Key aquifer to formations listed in Table GW-1.

Distance of Well(s) from Site Sources	Aquifer A: Includes Formations _____	Aquifer B: Includes Formations _____	Aquifer C: Includes Formations _____
1/4 mile or less	None		
> 1/4 to 1/2 mile	None		
> 1/2 to 1 mile	None		
> 1 to 2 miles	None		
> 2 to 3 miles	None		
> 3 to 4 miles	None		

Reference(s) Well log permits

11. ***Is ground water from multiple wells blended prior to distribution?***
☐ Yes ■ No Reference(s) SAP

12. **Is ground water blended with surface water?**
☐ Yes ■ No Reference(s) SAP

Briefly describe: _____

13. **Distance from any incompletely contained source available to ground water to nearest drinking water well** (HRS Section 3.3.1): NA feet Reference(s) SAP

14. **Briefly describe standby drinking water wells within 4 miles of sources at the site:**

15. **Ground water resources within 4 miles of site sources** (HRS Section 3.3.3):
- ☐ Irrigation (5-acre minimum) of commercial food or commercial forage crops
- ☐ Commercial livestock watering
- ☐ Ingredient in commercial food preparation
- ☐ Supply for commercial aquaculture
- ☐ Supply for major or designated water recreation area, excluding drinking water use
- ☐ Water usable for drinking water but no drinking water wells are within 4 miles
- ■ None of the above

Reference(s) SAP

16. **Wellhead protection area (WHPA) within 4 miles of site sources** (HRS Section 3.3.4):
- ☐ Source with non-zero containment factor values lies within or above WHPA
- ☐ Observed ground water contamination attributable to site source(s) lies within WHPA
- ☐ WHPA lies within 4 miles of site sources
- ■ None

Reference(s)

Additional ground water pathway description:

Reference(s)

SURFACE WATER INFORMATION

Complete this section of the data summary for each watershed if there are multiple watersheds. Photocopy this page if necessary.

1. **Describe surface water migration path from site sources to at least 15 miles downstream.** Attach a sketch of the surface water migration route.

   Three ditches collect surface run-off from the site. The three ditches join Forked Gulch just north of the site. Forked Gulch then continues north for approximately 1 mile where it then joins the Arkansas River.

   Reference(s) SAR

2. **Is surface water contaminated?**
   ■ Yes ☐ No ☐ Uncertain but likely ☐ Uncertain but not likely ☐ Additional sampling required
   Is analytical evidence available? ■ Yes ☐ No Reference(s) ARR

3. **Is surface water contamination attributable to the site?**
   ■ Yes ☐ No ☐ Additional sampling required Reference(s) ARR

4. **Floodplain category in which site sources are located** (check all that apply):
   ☐ 1-year ☐ 10-year ☐ 100-year ☐ 500-year ■ None
   Reference(s) SAP

5. **Describe flood containment for each source** (HRS Section 4.1.2.1.2.2):

   Source #1 Contaminated soil Flood containment NA

   Source #2 Tailings pile Flood containment NA

   Source #3 _____ Flood containment _____

   Source #4 _____ Flood containment _____

   Reference(s) _____

6. **Shortest overland distance to surface water from any source** (HRS Section 4.1.2.1.2.1.3):
   50 feet Reference(s) TAT visit; SAR

7. **Size of drainage area** (HRS Section 4.4.3): 300 acres Reference(s) Canon City USGS 7.5' Topographic Map

8. **Describe predominant soil group within the drainage area** (HRS Section 4.1.2.1.2.1.2):

Moderately fine-textured soils with low infiltration rates.

Reference(s) TAT visit; ARR

9. **2-year 24-inch rainfall** (HRS Section 4.1.2.1.2.1.2):
1.5 - 2 inches Reference(s) Rainfall Atlas

10. **Elevation of the bottom of nearest surface water body:**
5,580 feet above sea level Reference(s) Canon City USGS 7.5' Topographic Map

11. **Elevation of top of uppermost aquifer:**
5,350 feet above sea level Reference(s) Well log permits

12. **Predominant type of water body between probable point of entry to surface water and nearest drinking water intake:**
■ River ☐ Lake Reference(s) SAP

13. **Identify all drinking water intakes, fisheries, and sensitive environments within 15 miles downstream.**

Target Name/Type	Water Body Type	Distance from PPE	Flow (cfs)	Target Characteristics[1]	Target Sampled?
Forked Gulch	Stream	1,000 ft	10	Wetland (1 mile)	Yes
Arkansas River	River	1.5 miles	800	Drinking water (3,000)	Yes
Arkansas River	River	1.5 miles	800	Trout (unknown)	Yes

[1] If target is a drinking water intake, provide number of people served by intake.
If target is a fishery, provide species and annual production of human chain organisms (pounds per year).
If target is a wetland, specify wetland frontage (in miles). Attach calculation pages.

Reference(s) SAP; Colorado Division of Wildlife

14. **Is surface water drinking water blended prior to distribution?**
■ Yes ☐ No Reference(s) SAP

15. Describe any standby drinking water intakes within 15 miles downstream.

None exist.

Reference(s) _____

16. Surface water resources within 15 miles downstream (HRS Section 4.1.2.3.3):

- ■ Irrigation (5-acre minimum) of commercial food or commercial forage crops
- ■ Commercial livestock watering
- ☐ Ingredient in commercial food preparation
- ■ Major or designated water recreation area, excluding drinking water use
- ☐ Water designated by the state for drinking water use but is not currently used
- ☐ Water usable for drinking water but no drinking water intakes within 15 miles downstream
- ☐ None of the above

Reference(s) Fremont County Master Plan

SOIL INFORMATION

1. **Is surficial or soil contamination present at the site?**
   ■ Yes ☐ No ☐ Uncertain but likely ☐ Uncertain but not likely
   ☐ Additional sampling required
   Is analytical evidence available? ☐ Yes ☐ No Reference(s) ARR

2. **Is surficial or soil contamination attributable to the site?**
   ■ Yes ☐ No ☐ Additional sampling required

3. **Is surficial contamination on the property and within 200 feet of a residence, school, daycare center, or workplace?**
   ☐ Yes ■ No ☐ Uncertain but likely ☐ Uncertain but not likely
   ☐ Additional sampling required
   Is analytical evidence available? ■ Yes ☐ No Reference(s) ARR

4. **Total area of surficial contamination** (HRS Section 5.2.1.2):
   300,000 square feet Reference(s) ARR

5. **Attractiveness/accessibility of the areas of observed contamination** (HRS Section 5.2.1.1). Check all that apply:

   ☐ Designated recreational area
   ☐ Used regularly, or accessible and unique recreational area
   ☐ Moderately accessible with some use
   ■ Slightly accessible with some use
   ☐ Accessible with no use
   ☐ Inaccessible with some use
   ☐ Inaccessible with no use

   Reference(s) ARR

6. **Population within a 1-mile travel distance from site.**

Distance from Site Sources	Population
1/4 mile or less	40 to 55 (all workers)
> 1/4 to 1/2 mile	175 to 220 (all workers)
> 1/2 to 1 mile	500 to 1,000

AIR INFORMATION

1. **Is air contamination present at the site?**
   ■ Yes ☐ No ☐ Uncertain but likely ☐ Uncertain but not likely
   ☐ Additional sampling required
   Is analytical evidence available? ■ Yes ☐ No Reference(s) ARR

2. **Is air contamination attributable to the site?**
   ■ Yes ☐ No ☐ Additional sampling required

3. **Are populations, sensitive environments, or wetlands exposed to airborne hazardous substances released from the site?**
   ■ Yes ☐ No ☐ Uncertain but likely ☐ Uncertain but not likely
   ☐ Additional sampling required
   Is analytical evidence available? ■ Yes ☐ No Reference(s) ARR

4. **Evidence of biogas release from any of the following source types at the site:**
   ☐ Below-ground containers or tanks ☐ Landfill ☐ Buried surface impoundment

   Reference(s) NA

5. **Particulate migration potential factor value:** 17 (HRS Figure 6-2)

6. **Particulate mobility factor value:** .0008 (HRS Figure 6-3)

7. **Distance from any incompletely contained source to nearest residence or regularly occupied area:**
   <0.25 miles Reference(s) ARR

8. **Population within 4 miles of site sources.**

Distance from Site Sources	Population
0 (within site sources)	0
1/4 mile or less	40 to 55 (all workers)
> 1/4 to 1/2 mile	175 to 220 (all workers)
> 1/2 to 1 mile	500 to 1,000
> 1 to 2 miles	2,000 to 2,500
> 2 to 3 miles	4,500 to 5,500
> 3 to 4 miles	5,000 to 6,000

Reference(s) ARR

9. **Resources within 1/2 mile of site sources** (HRS Section 6.3.3):
   - ☐ Commercial agriculture
   - ☐ Commercial silviculture
   - ☐ Major or designated recreation area
   - ■ None of the above

   Reference(s) SAP; Tat visit; Fremont County Master Plan

10. **Sensitive environments and wetlands within 4 miles of the site.**

Name/Description/Location of Sensitive Environment or Wetland	Distance from Site (Miles)	Type of Sensitive Environment	Wetland Size (acres)
Forked Gulch	0.25	Wetland	1 to 2

Reference(s) ARR

ADDITIONAL INFORMATION AND COMMENTS

REFERENCES

Colorado, State of, Office of the State Engineer, Division of Water Resources, Well Log Permits.

Delaware, University of, 1986, Center for Climatic Research, Terrestrial Water Budget Data Archive.

Design Studios West, Inc., 1990, Fremont County Master Plan.

Ecology and Environment, Inc., August 12, 1994, Sampling and Analysis Plan, College of the Canyons Smelter Site.

Ecology and Environment, Inc., February 21, 1995, Sampling Activities Report, College of the Canyons Smelter Site.

Ecology and Environment, Inc., April 7, 1995, Analytical Results Report (ARR), College of the Canyons Smelter Site.

U.S. Weather Bureau, Rainfall Frequency Atlas of the United States, Technical Paper No. 40.

APPENDIX C

QUALITY ASSURANCE/QUALITY CONTROL REPORTS

REGION VIII
INORGANIC - SUMMARY OF DATA QUALITY ASSURANCE REVIEW

SITE NAME: College of the Canyons Smelter

SITE LOCATION: Canon City, Colorado

TDD#: T08-9410-014 PAN#: ECO0487SCA

OSC NAME: Mike Zimmerman OSC PHONE: (303) 294-7134

SAM NAME: Pat Smith SAM PHONE: (303) 293-1262

CONTRACT LABORATORY: CKY Inc., Torrance, California

DATA REVIEWER: D'Arcy Straub REVIEW COMPLETION DATE: 12/7/94

SAMPLE #	SAMPLE LOCATION	MATRIX
CC-A-1 thru CC-A-5	College of the Canyons	Air
CC-A-6 thru CC-A-10	Fremont County Business Development	Air
CC-A-11 thru CC-A-15	Near Barricade	Air
CC-A-16 thru CC-A-20	West Side - East Unit of Duplicate	Air
CC-A-21 thru CC-A-25	West Side - West Unit of Duplicate	Air
CC-A-26 thru CC-A-30	Colo. State Forest Service Shops	Air
CC-A-31 thru CC-A-35	Transfer Yard	Air
CC-A-36 thru CC-A-40	Salvage Yard	Air

DATA QUALITY STATEMENT

( ) Data are ACCEPTABLE according to the OSWER Directive with no qualifiers (flags) by the reviewer.
( ) Data are UNACCEPTABLE according to the OSWER Directive.
(X) Data are acceptable according to the OSWER Directive with QUALIFICATIONS noted in review.

Telephone/communication logs enclosed? **No**

DPO attention required? **No**

INORGANIC DATA QUALITY ASSURANCE REVIEW

REVIEW NARRATIVE SUMMARY

The following data validation review concerns the samples collected from the College of the Canyons Smelter site in Canon City, Colorado. The air samples were collected from eight high volume air samplers (hi-vols) over a five day period from August 16 to August 19, 1994 and from August 23 to August 25, 1994. Suspended particles were collected on Whatman 41 cellulose 8"x10" filter paper. A sampling period consisted of one day, and thus five pieces of filter paper were obtained for each hi-vol station over the sampling period.

The suspended particles on the filter paper were analyzed for metals via inductively coupled plasma spectroscopy according to EPA method 6010. To analyze for metals, each piece of filter paper was digested into 250 mL of solution. Based upon the concentration determined by ICP (i.e., $\mu g/L$), the concentration of a metal can be converted into mass of metal per a piece of filter paper. This result will then be combined with the volume of air pulled through the hi-vol per a sampling period to yield the mass of metal per cubic meter of air. Due to the large number of calculations that would be required to convert the lab result (μg per a filter paper) to the final result ($\mu g/m^3$), only the results for lead will be reported in $\mu g/m^3$. All of the data for each element, however, will nonetheless be validated.

The review that follows consists of two sample delivery groups (SDG). The first SDG consists of the data collected over the first three days, while the second SDG consists of the data collected over the final two days. The first SDG consists of the following samples: CC-A-1, CC-A-2, CC-A-3, CC-A-6, CC-A-7, CC-A-8, CC-A-11, CC-A-12, CC-A-13, CC-A-16, CC-A-17, CC-A-18, CC-A-21, CC-A-22, CC-A-23, CC-A-26, CC-A-27, CC-A-28, CC-A-31, CC-A-32, CC-A-33, CC-A-36, CC-A-37, and CC-A-38. The second SDG consists of the following samples: CC-A-4, CC-A-5, CC-A-9, CC-A-10, CC-A-14, CC-A-15, CC-A-19, CC-A-20, CC-A-24, CC-A-25, CC-A-29, CC-A-30, CC-A-34, CC-A-35, CC-A-39, and CC-A-40.

The results of the analyses are acceptable with qualifications as given by OSWER Directive 9360.4-01. The major problems associated with the two SDG's were contaminants being present in the blanks and a failure to meet the QA/QC criteria for ICP serial dilutions.

I. DELIVERABLES
All deliverables were present as specified in the applicable statement of work.
Yes

II. HOLDING TIMES
All OSWER holding times were met.
Yes

III. INSTRUMENT CALIBRATION: STANDARDS & BLANKS
Initial instrument calibrations were performed according to contract requirements and met the specified control limits.
Yes

A. The initial and continuing calibration verification standards (ICV and CCV, respectively), met contract requirements.
No

Comments: The same solution was used for the ICV and CCV analyses. Solutions with different concentrations should have been used, but no action was taken as this is interpreted to be a minor infraction which has no bearing on the quality of the data.

The instruments were calibrated daily and each time they were set up.
Yes

The instruments were calibrated using one blank and the appropriate number of standards.
Yes

The calibration verification results were within 90-110% recovery.
Yes

The continuing calibration standards and blanks were run at 10% frequency.
Yes

B. The CRDL STANDARDS for ICP met contract requirements.
Yes

ICP Analysis: Standards (CRI) at 2 times the CRDL or the IDL (whichever were greater) were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.
Yes

The CRI was analyzed after the ICV.
Yes

IV. FILTER PAPER AND PREPARATION BLANKS

A. Preparation blanks were run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.
Yes

The following elements were detected in the laboratory blank at levels above the instrument detection limit.

Element	Concentration	IDL	CRDL
	Preparation Blank #1, SDG #1		
Al	84 µg/L	26 µg/L	200 µg/L
Fe	29 µg/L	4 µg/L	100 µg/L
	Preparation Blank #2, SDG #1		
Al	111 µg/L	26 µg/L	200 µg/L
Fe	37 µg/L	4 µg/L	100 µg/L
	Preparation Blank #1, SDG #2		
Al	90 µg/L	26 µg/L	200 µg/L
Zn	11 µg/L	5 µg/L	20 µg/L

Comments: None of the above elements were detected in samples at less than ten times the amount detected in the associated blank. Therefore, no action was taken.

B. Filter paper blanks were run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.
Yes

The following elements were detected in the laboratory blank at levels above the contract required detection limit.

Element	Concentration	CRDL
	Filter Blank #1, SDG #1	
Al	240 µg/L	200 µg/L
Fe	220 µg/L	100 µg/L
Zn	21 µg/L	20 µg/L
	Filter Blank #2, SDG #1	
Al	240 µg/L	200 µg/L
Fe	210 µg/L	100 µg/l
Ag	59 µg/L	10 µg/L
	Filter Blank #1, SDG #2	
Fe	213 µg/L	100 µg/L
Zn	74 µg/L	20 µg/L

The samples listed below contained zinc that was detected in samples at less than five times the amount detected in the associated laboratory blank listed above (elements are listed only if blank contamination levels are greater than 2X the IDL or greater than the CRDL). The following samples are all associated with filter blank #1 of the second sample delivery group.

Sample ID	Element	Sample Conc.	Blank Conc.
CC-A-9	Zn	262 µg/L	74 µg/L
CC-A-10	Zn	232 µg/L	74 µg/L
CC-A-19	Zn	284 µg/L	74 µg/L
CC-A-24	Zn	272 µg/L	74 µg/L
CC-A-29	Zn	184 µg/L	74 µg/L
CC-A-30	Zn	176 µg/L	74 µg/L
CC-A-34	Zn	188 µg/L	74 µg/L
CC-A-35	Zn	192 µg/L	74 µg/L
CC-A-39	Zn	204 µg/L	74 µg/L
CC-A-40	Zn	132 µg/L	74 µg/L

Comments: Zinc in the above samples will be qualified as estimated (J). Under normal circumstances, data in this situation would be qualified as undetected at 74 µg/L. The results for the above samples, however, will not be used to indicate the presence of a release, but rather the magnitude of confirmed releases. The magnitude of a confirmed release will be calculated by dividing the largest concentration of zinc observed by the smallest concentration of zinc observed (i.e., the background level). Smaller background concentrations would indicate a larger magnitude of a confirmed release, while larger background concentrations, such as those incurred from contamination, would indicate a smaller magnitude of release.

V. ICP INTERFERENCE CHECK SAMPLE
The ICP interference check sample (ICS) was run twice per eight hour shift and/or at the beginning and end of each sample set analysis sequence (whichever is more frequent), with the interferences properly corrected for (as defined in the SOW).
Yes

VI. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). All results were within the control limits.

Yes

VII. DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The RPDs were within control limits and correctly calculated.

$$RPD = \frac{(S-D)}{(S+D)/2} \times 100$$

S = sample
D = duplicate

Yes

For sample concentrations greater than 5 times the CRDL, RPDs were within ±20% (limits of ±35% apply for soil/sediment/tailings samples).

Yes

For sample concentrations less than 5 times the CRDL, duplicate analysis results were within the control window of ± CRDL.

Yes

Comments: In conducting the duplicate sample analyses, only the results for lead were considered. The results received from the laboratory were given as μg per filter paper. However, only the final results, given in $\mu g/m^3$, can be used for duplicate sample analysis. The relative percent differences obtained for each of the five days for the duplicate hi-vols were 33%, 44%, 0%, 8%, and 13%, with the average RPD being 20%. Because the concentrations were less than five times the CRDL, no action was taken based upon the duplicate sample analyses.

VIII. SPIKED SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty of fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The percent recoveries (%R) were within the control limits and correctly calculated.

$$\% \text{ Recovery} = \frac{(SSR-SR)}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

Yes

Spike recoveries were within the range of 75-125% (grant an exception where the sample concentration is 4 times the spike concentration).

No

Comments: Silver for both sample delivery groups failed with a recovery of 31 and 67%. Silver was undetected in every sample and the associated detection limits were qualified as estimated (UJ).

X. QUARTERLY INSTRUMENT DETECTION LIMITS

Quarterly instrument detection limits (IDL) were provided and all IDLs met the contract requirements.

Yes

XI. ICP QC
A SERIAL DILUTION was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent), and was without interference problems as defined by the SOW.
No

Comments: From the first SDG, iron, exceeded the 10% limit with percent difference of 11%. All associated data will be qualified as estimated.

XII. INTERELEMENT CORRECTION FOR ICP
Interelement corrections for ICP were reported.
Yes

XIII. LINEAR RANGE VERIFICATION ANALYSIS
Linear Range Verification Analysis (LRA) was performed and results were within control limits of $\pm$5% of the true value.
Yes

XV. Additional comments, problems, or resolutions not addressed above.

The laboratory reported that sample CC-A-39 was contaminated during the preparatory stage via a boiling chip rich in calcium and magnesium. The data for calcium and magnesium are rejected for this sample. The laboratory corrected the problem before any further samples were analyzed.

The results for the total suspended particulates were rejected. Each filter paper was weighed numerous times, with the standard deviation of the measurements being approximately 33 to 50% of the suspended particulates. Thus, because the amount of suspended particulates is on the same order of magnitude as the variation of the mass determinations, the total suspended particulate data is unreliable.

REGION VIII
INORGANIC - SUMMARY OF DATA QUALITY ASSURANCE REVIEW

SITE NAME: College of the Canyons Smelter

SITE LOCATION: Canon City, Colorado

TDD#: T08-9410-014 PAN#: ECO0487SCA

OSC NAME: Mike Zimmerman OSC PHONE: (303) 294-7134

SAM NAME: Pat Smith SAM PHONE: (303) 293-1262

CONTRACT LABORATORY: CKY Inc., Torrance, California

DATA REVIEWER: D'Arcy Straub REVIEW COMPLETION DATE: Nov. 17,1994

SUMMARY OF THE DATA QUALITY ASSURANCE REVIEW

This data validation report regards the samples that were collected from the College of the Canyons Smelter Site near Canon City, Colorado. Analyses were conducted on 19 surface water, 16 sediment, and 14 soil samples. Due to the large number of samples, the analyses were divided into three separate sample delivery groups. The first sample delivery group consists of the surface water samples. The second sample delivery group consists of all the sediment samples plus four soil samples, while the third sample delivery group consists of the remaining soil samples.

All of the samples were analyzed for the hazardous substance list metals. Most of the metal concentrations were determined by inductively coupled plasma (ICP) spectroscopy. The concentrations of lead, arsenic, thallium, and selenium were determined by graphite furnace atomic absorption in those samples in which the concentrations of these analytes was below the detection limit of ICP analysis. The concentration of mercury was determined by cold vapor atomic absorption. In addition to metals, the concentration of cyanide was also determined for the samples of the second delivery group.

The following data review report has been divided into three sections, each of which corresponds to one of the sample delivery groups. In accordance to the OSWER directive, the data for each of the sample delivery groups was found to be acceptable with the noted qualifications.

DATA QUALITY STATEMENT

( ) Data are ACCEPTABLE according to the OSWER Directive with no qualifiers (flags) by the reviewer.
( ) Data are UNACCEPTABLE according to the OSWER Directive.
(X) Data are acceptable according to the OSWER Directive with QUALIFICATIONS noted in review.

Telephone/communication logs enclosed? **No**

DPO attention required? **No**

INORGANIC DATA QUALITY ASSURANCE REVIEW

SAMPLE DELIVERY GROUP #1

SAMPLE #	SAMPLE LOCATION	MATRIX
CC-SW-01	Downstream in AK	Water
CC-SW-02	Upstream in AK	Water
CC-SW-03	Drainage before AK	Water
CC-SW-04	Under Stanley Bridge	Water
CC-SW-05	Irrigation Canal	Water
CC-SW-06	Creek between Highland and Junkyard	Water
CC-SW-07	GW Seep from Hillside	Water
CC-SW-08	Upstream of Seeps before Kochs	Water
CC-SW-09	"Sewer" Water Influent	Water
CC-SW-10	Upstream of "Sewer" Water Influent	Water
CC-SW-11	GW @ Tree	Water
CC-SW-12	Upstream of GW @ Tree	Water
CC-SW-13	Downstream of Conf. of Main & West	Water
CC-SW-14	Upstream of Conf. of Main & West	Water
CC-SW-15	W of Valley Rd at Main & West	Water
CC-SW-16	Drainage N of Valley Rd & Main	Water
CC-SW-17	West of Red Piles	Water
CC-SW-18	SE Corner of Valley Rd & Mariposa	Water
CC-SW-19	Western Drainage	Water

REVIEW NARRATIVE SUMMARY

The following problems with quality assurance and quality control (QA/QC) criteria were found to exist with the first sample delivery group:

- Aluminum was detected in the preparation blank at a level twice the instrument detection limit
- Selenium and lead failed their spiked sample analyses
- Arsenic, lead, thallium, and selenium all experienced problems with the GFAA QA/QC criteria.

Specifics regarding the QA/QC violations are detailed below.

I. DELIVERABLES
All deliverables were present as specified in the applicable statement of work.
Yes

II. HOLDING TIMES
All OSWER holding times were met.
Yes

III. INSTRUMENT CALIBRATION: STANDARDS & BLANKS
Initial instrument calibrations were performed according to contract requirements and met the specified control limits.
Yes

A. The initial and continuing calibration verification standards (ICV and CCV, respectively), met contract requirements.
Yes

The instruments were calibrated daily and each time they were set up.
Yes

The instruments were calibrated using one blank and the appropriate number of standards.
Yes

The calibration verification results were within 90-110% recovery.
No

Comments: One of the CCV's during the ICP analyses for lead was outside the control limits, but the samples bracketed by the bad CCV were analyzed by GFAA. No action was taken.

The continuing calibration standards and blanks were run at 10% frequency.
Yes

B. The CRDL STANDARDS for ICP and/or AA met contract requirements.
Yes

ICP Analysis: Standards (CRI) at 2 times the CRDL or the IDL (whichever were greater) were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.
Yes

GFAA Analysis: Standards (CRA) were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.
Yes

The CRI and the CRA were analyzed after the ICV.
Yes

IV. LABORATORY/PREPARATION BLANKS
A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.
Yes

No elements were detected in the laboratory blank at levels above the contract required detection limit.
Yes

The following elements were detected in samples at less than five times the amount detected in the associated laboratory blank (list only if blank contamination levels are greater than 2X the IDL or greater than the CRDL). Concentrations are given in µg/L.

Sample ID	Element	Sample Conc.	Blank Conc.	IDL
CC-SW-07	Al	103	141	50
CC-SW-11	Al	245	141	50
CC-SW-13	Al	474	141	50
CC-SW-15	Al	75	141	50

Comments: The results for the analyses of aluminum for the above samples are qualified as undetected.

V. ICP INTERFERENCE CHECK SAMPLE

The ICP interference check sample (ICS) was run twice per eight hour shift and/or at the beginning and end of each sample set analysis sequence (whichever is more frequent), with the interferences properly corrected for (as defined in the SOW).
Yes

Comments: Some of the relevant ICS results were not reported on Form IV.

VI. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). All results were within the control limits.
Yes

VII. DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The RPDs were within control limits and correctly calculated.

$$RPD = \frac{(S-D)}{(S+D)/2} \times 100$$

S = sample
D = duplicate

Yes

For sample concentrations greater than 5 times the CRDL, RPDs were within ±20% (limits of ±35% apply for soil/sediment/tailings samples).
Yes

For sample concentrations less than 5 times the CRDL, duplicate analysis results were within the control window of ± CRDL.
Yes

VIII. SPIKED SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty of fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The percent recoveries (%R) were within the control limits and correctly calculated.

$$\% \text{ Recovery} = \frac{(SSR-SR)}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

Yes

Spike recoveries were within the range of 75-125% (grant an exception where the sample concentration is 4 times the spike concentration).
No

Comments: The spike recoveries for the GFAA analyses of lead and selenium failed with recoveries of 62 and 0%, respectively. Because the spike recovery of selenium was below 30%, the data for selenium is rejected. Regarding the analysis of lead, only those samples analyzed by GFAA are qualified as estimated. Samples CC-SW-04, CC-SW-06, CC-SW-08, CC-SW-10, and CC-SW-12 possessed elevated levels of lead and were analyzed via ICP.

IX. POST DIGEST SPIKE RECOVERY

A post-digest spike was performed for those elements that did not meet the specified criteria (exception: Ag and Hg). Pre-digestion/pre-distillation spike recovery fell outside of control limits and sample result was less than four times the spike amount added.
Yes

X. QUARTERLY INSTRUMENT DETECTION LIMITS

Quarterly instrument detection limits (IDL) were provided and all IDLs met the contract requirements.
Yes

XI. ICP QC

A SERIAL DILUTION was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent), and was without interference problems as defined by the SOW.
Yes

XII. INTERELEMENT CORRECTION FOR ICP

Interelement corrections for ICP were reported.
Yes

XIII. LINEAR RANGE VERIFICATION ANALYSIS

Linear Range Verification Analysis (LRA) was performed and results were within control limits of $\pm$5% of the true value.
Yes

XIV. GFAA QC

DUPLICATE INJECTIONS were performed for each GFAA sample analysis. The %RSD results were calculated correctly and within control limits.
Yes

All GFAA QC spike recoveries criteria were met.
No

Comments: Several samples were qualified as estimated due to spike recoveries not being met. The samples described below possessed an analyte concentration that was below 50% of the spike concentration and thus were not required to be analyzed via the method of standard additions.
Arsenic: CC-SW-13 and CC-SW-15 failed to meet the 85% recovery criterium and were qualified as estimated.
Lead: CC-SW-02, CC-SW-05, and CC-SW-07 failed to meet the 85% recovery criterium and were qualified as estimated.
Selenium: All of the samples failed the 40% recovery criterium upon initial analysis. Upon dilution and reanalysis, some of the samples failed the 40% recovery criterium a second time, while the remaining samples failed the 85% recovery criterium. Consequently, all of the samples for selenium are qualified as estimated.
Thallium: CC-SW-19 failed the 40% recovery criterium twice, while the remaining samples failed the 85% recovery criterium except for the following samples: CC-SW-09, CC-SW-11, CC-SW-17, and CC-SW-18. The samples failing the recovery criteria were qualified as estimated.

The METHOD of STANDARD ADDITIONS (MSA) (at 50,100, and 150% of sample absorbance) was used for GFAA analysis when required (sample absorbance >50% of spike absorbance, and percent recovery out of 85-115% control limits) and met contract criteria.
No

Comments: Samples CC-SW-12 and CC-SW-14 for arsenic and samples CC-SW-01 and CC-SW-16 for lead were analyzed using MSA. Sample CC-SW-16 failed to produce a calibration line with a correlation coefficient greater than 0.995. The result for CC-SW-16 is qualified as estimated.

XV. Additional comments, problems, or resolutions not addressed above.
None

INORGANIC DATA QUALITY ASSURANCE REVIEW

SAMPLE DELIVERY GROUP #2

SAMPLE #	SAMPLE LOCATION	MATRIX
CC-SE-01	CC-XRF-137	Sediment
CC-SE-02	CC-XRF-139	Sediment
CC-SE-03	CC-XRF-140	Sediment
CC-SE-04	CC-XRF-130	Sediment
CC-SE-05	CC-XRF-131	Sediment
CC-SE-06	CC-XRF-125	Sediment
CC-SE-07	CC-XRF-136	Sediment
CC-SE-08	CC-XRF-134	Sediment
CC-SE-09	CC-XRF-124	Sediment
CC-SE-10	CC-XRF-122	Sediment
CC-SE-11	CC-XRF-120	Sediment
CC-SE-12	CC-XRF-118	Sediment
CC-SE-13	CC-XRF-114	Sediment
CC-SE-14	CC-XRF-113	Sediment
CC-SE-15	CC-XRF-111	Sediment
CC-SE-16	CC-XRF-112	Sediment
CC-SO-10	CC-XRF-041	Soil
CC-SO-11	CC-XRF-042	Soil
CC-SO-12	CC-XRF-043	Soil
CC-SO-13	CC-XRF-045	Soil

REVIEW NARRATIVE SUMMARY

The following problems with quality assurance and quality control (QA/QC) criteria were found to exist with the second sample delivery group:

- Zinc failed the ICP serial dilution analysis
- Selenium and antimony failed their spiked sample analyses
- Arsenic, lead, thallium, and selenium all experienced problems with the GFAA QA/QC criteria.

Specifics regarding the QA/QC violations are detailed below.

I. DELIVERABLES
All deliverables were present as specified in the applicable statement of work.
Yes

II. HOLDING TIMES
All OSWER holding times were met.
Yes

III. INSTRUMENT CALIBRATION: STANDARDS & BLANKS
Initial instrument calibrations were performed according to contract requirements and met the specified control limits.
Yes

A. The initial and continuing calibration verification standards (ICV and CCV, respectively), met contract requirements.
Yes

The instruments were calibrated daily and each time they were set up.
Yes

The instruments were calibrated using one blank and the appropriate number of standards.
Yes

The calibration verification results were within 90-110% recovery.
Yes

The continuing calibration standards and blanks were run at 10% frequency.
Yes

B. The CRDL STANDARDS for ICP and/or AA met contract requirements.
Yes

ICP Analysis: Standards (CRI) at 2 times the CRDL or the IDL (whichever were greater) were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.
Yes

GFAA Analysis: Standards (CRA) were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.
Yes

The CRI and the CRA were analyzed after the ICV.
Yes

IV. LABORATORY/PREPARATION BLANKS
A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.
Yes

No elements were detected in the laboratory blank at levels above the contract required detection limit.
Yes

No elements were detected in samples at less than five times the amount detected in the associated laboratory blank (list only if blank contamination levels are greater than 2X the IDL or greater than the CRDL).
Yes

V. ICP INTERFERENCE CHECK SAMPLE
The ICP interference check sample (ICS) was run twice per eight hour shift and/or at the beginning and end of each sample set analysis sequence (whichever is more frequent), with the interferences properly corrected for (as defined in the SOW).
Yes

VI. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). All results were within the control limits.

Yes

VII. DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The RPDs were within control limits and correctly calculated.

$$RPD = \frac{(S-D)}{(S+D)/2} \times 100$$

S = sample
D = duplicate

Yes

For sample concentrations greater than 5 times the CRDL, RPDs were within $\pm$20% (limits of $\pm$35% apply for soil/sediment/tailings samples).

Yes

For sample concentrations less than 5 times the CRDL, duplicate analysis results were within the control window of $\pm$ CRDL.

Yes

VIII. SPIKED SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty of fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The percent recoveries (%R) were within the control limits and correctly calculated.

$$\% \text{ Recovery} = \frac{(SSR-SR)}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

Yes

Spike recoveries were within the range of 75-125% (grant an exception where the sample concentration is 4 times the spike concentration).

No

Comments: Antimony and selenium failed the spike recovery criterium with recoveries of 48 and 0%, respectively. All of the results for antimony are qualified as estimated, while all of the results for selenium are rejected because its recovery was below 30%.

IX. POST DIGEST SPIKE RECOVERY

A post-digest spike was performed for those elements that did not meet the specified criteria (exception: Ag and Hg). Pre-digestion/pre-distillation spike recovery fell outside of control limits and sample result was less than four times the spike amount added.

Yes

X. QUARTERLY INSTRUMENT DETECTION LIMITS

Quarterly instrument detection limits (IDL) were provided and all IDLs met the contract requirements.

Yes

XI. ICP QC
A SERIAL DILUTION was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent), and was without interference problems as defined by the SOW.
No

Comments: Zinc failed the serial dilution criterium by possessing a 17% difference between the original and diluted samples. All of the results for zinc are qualified as estimated. Iron was also reported by the laboratory to have failed, but a review of the raw data indicated that iron passed the 10% difference criterium at 9%.

XII. INTERELEMENT CORRECTION FOR ICP
Interelement corrections for ICP were reported.
Yes

XIII. LINEAR RANGE VERIFICATION ANALYSIS
Linear Range Verification Analysis (LRA) was performed and results were within control limits of ±5% of the true value.
Yes

XIV. GFAA QC
DUPLICATE INJECTIONS were performed for each GFAA sample analysis. The %RSD results were calculated correctly and within control limits.
Yes

All GFAA QC spike recoveries criteria were met.
No

Comments: Several samples were qualified as estimated due to spike recoveries not being met. The samples described below possessed an analyte concentration that was below 50% of the spike concentration and thus were not required to be analyzed via the method of standard additions.
Selenium: All of the samples failed the 40% recovery criterium of the initial analysis. Upon dilution and reanalysis, all of the samples either failed the 40% or 85% recovery criterium. All of the results for selenium are qualified as estimated.
Thallium: Samples CC-SE-04, CC-SO-11, CC-SO-12, and CC-SO-13 failed the 85% recovery criterium and are qualified as estimated.

The METHOD of STANDARD ADDITIONS (MSA) (at 50,100, and 150% of sample absorbance) was used for GFAA analysis when required (sample absorbance >50% of spike absorbance, and percent recovery out of 85-115% control limits) and met contract criteria.
No

Comments: The following samples for arsenic were determined by MSA: CC-SE-01, CC-SE-07, CC-SE-08, and CC-SE-11. The following samples for lead were determined by MSA: CC-SE-01, CC-SE-02, CC-SE-14, and CC-SE-15. Only CC-SE-15 for lead did not produce a calibration line with a correlation coefficient greater than 0.995. The result for CC-SE-15 is qualified as estimated.

XV. Additional comments, problems, or resolutions not addressed above.
The cyanide analyses met all relevant QA/QC criteria.

INORGANIC DATA QUALITY ASSURANCE REVIEW

SAMPLE DELIVERY GROUP #3

SAMPLE #	SAMPLE LOCATION	MATRIX
CC-SO-01	CC-XRF-030	Soil
CC-SO-02	CC-XRF-029	Soil
CC-SO-03	CC-XRF-003	Soil
CC-SO-04	CC-XRF-005	Soil
CC-SO-05	CC-XRF-007	Soil
CC-SO-06	CC-XRF-013	Soil
CC-SO-07	CC-XRF-015	Soil
CC-SO-08	CC-XRF-026	Soil
CC-SO-09	CC-XRF-031	Soil
CC-SO-14	CC-XRF-046	Soil

REVIEW NARRATIVE SUMMARY

The following problems with quality assurance and quality control (QA/QC) criteria were found to exist with the third sample delivery group:

- Arsenic failed the interference check sample analysis
- Selenium, chromium, silver, and arsenic failed their spiked sample analyses
- Thallium and selenium all experienced problems with the GFAA QA/QC criteria.

Specifics regarding the QA/QC violations are detailed below.

I. DELIVERABLES
All deliverables were present as specified in the applicable statement of work.
Yes

II. HOLDING TIMES
All OSWER holding times were met.
Yes

III. INSTRUMENT CALIBRATION: STANDARDS & BLANKS
Initial instrument calibrations were performed according to contract requirements and met the specified control limits.
Yes

A. The initial and continuing calibration verification standards (ICV and CCV, respectively), met contract requirements.
Yes

The instruments were calibrated daily and each time they were set up.
Yes

The instruments were calibrated using one blank and the appropriate number of standards.
Yes

The calibration verification results were within 90-110% recovery.
Yes

The continuing calibration standards and blanks were run at 10% frequency.
Yes

B. The CRDL STANDARDS for ICP and/or AA met contract requirements.
Yes

ICP Analysis: Standards (CRI) at 2 times the CRDL or the IDL (whichever were greater) were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.
Yes

GFAA Analysis: Standards (CRA) were analyzed at the beginning and the end of each sample run, or at a minimum of twice per eight hour shift, whichever was more frequent.
Yes

The CRI and the CRA were analyzed after the ICV.
Yes

IV. LABORATORY/PREPARATION BLANKS

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.
Yes

No elements were detected in the laboratory blank at levels above the contract required detection limit.
Yes

No elements were detected in samples at less than five times the amount detected in the associated laboratory blank (list only if blank contamination levels are greater than 2X the IDL or greater than the CRDL).
Yes

V. ICP INTERFERENCE CHECK SAMPLE

The ICP interference check sample (ICS) was run twice per eight hour shift and/or at the beginning and end of each sample set analysis sequence (whichever is more frequent), with the interferences properly corrected for (as defined in the SOW).
No

Comments: Arsenic failed to meet the 80% recovery criterium with a percent recovery of 72%. The results for arsenic are qualified as estimated for all of the samples that were analyzed by ICP. These samples are CC-SO-04, CC-SO-05, CC-SO-06, CC-SO-07, CC-SO-08, and CC-SO-09.

VI. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). All results were within the control limits.

Yes

VII. DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The RPDs were within control limits and correctly calculated.

$$RPD = \frac{(S-D)}{(S+D)/2} \times 100$$

S = sample
D = duplicate

Yes

For sample concentrations greater than 5 times the CRDL, RPDs were within $\pm$20% (limits of $\pm$35% apply for soil/sediment/tailings samples).

Yes

For sample concentrations less than 5 times the CRDL, duplicate analysis results were within the control window of $\pm$ CRDL.

Yes

VIII. SPIKED SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty of fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent). The percent recoveries (%R) were within the control limits and correctly calculated.

$$\% \text{ Recovery} = \frac{(SSR-SR)}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

Yes

Spike recoveries were within the range of 75-125% (grant an exception where the sample concentration is 4 times the spike concentration).

No

Comments: The spike recoveries for the following elements were outside of the control limits: chromium at 339%, selenium at 12%, silver at 66%, and arsenic by GFAA at 219% (arsenic by ICP met control limits). The results for silver were qualified as estimated, while only those results above the instrument detection limit were qualified as estimated for chromium and arsenic. The results for selenium were rejected because its recovery was below 30%.

IX. POST DIGEST SPIKE RECOVERY

A post-digest spike was performed for those elements that did not meet the specified criteria (exception: Ag and Hg). Pre-digestion/pre-distillation spike recovery fell outside of control limits and sample result was less than four times the spike amount added.

Yes

X. QUARTERLY INSTRUMENT DETECTION LIMITS
Quarterly instrument detection limits (IDL) were provided and all IDLs met the contract requirements.
Yes

XI. ICP QC
A SERIAL DILUTION was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent), and was without interference problems as defined by the SOW.
Yes

XII. INTERELEMENT CORRECTION FOR ICP
Interelement corrections for ICP were reported.
Yes

XIII. LINEAR RANGE VERIFICATION ANALYSIS
Linear Range Verification Analysis (LRA) was performed and results were within control limits of ±5% of the true value.
Yes

XIV. GFAA QC
DUPLICATE INJECTIONS were performed for each GFAA sample analysis. The %RSD results were calculated correctly and within control limits.
Yes

All GFAA QC spike recoveries criteria were met.
No

Comments: Several samples were qualified as estimated due to spike recoveries not being met. The samples described below possessed an analyte concentration that was below 50% of the spike concentration and thus were not required to be analyzed via the method of standard additions.
Selenium: All of the samples failed the 40% recovery criterium upon initial analysis. Upon dilution and reanalysis, samples CC-SO-01 and CC-SO-02 failed to meet the 85% recovery criterium, while the remaining samples failed to meet the 40% recovery criterium. All of the sample results for selenium are qualified as estimated.

The METHOD of STANDARD ADDITIONS (MSA) (at 50,100, and 150% of sample absorbance) was used for GFAA analysis when required (sample absorbance >50% of spike absorbance, and percent recovery out of 85-115% control limits) and met contract criteria.
Yes

Comments: Thallium samples CC-SO-06, CC-SO-07, CC-SO-08, and CC-SO-09 were analyzed by MSA and met QA/QC criteria.

XV. Additional comments, problems, or resolutions not addressed above.
None

APPENDIX D

LABORATORY RAW DATA

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW01

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW01

Level (low/med): LOW Date Received: 09/13/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1910			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	97.5	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	47900			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	2130			P
7439-92-1	Lead	12.1		SN	F
7439-95-4	Magnesium	12000			P
7439-96-5	Manganese	142			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	2510	B		P
7782-49-2	Selenium	5.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	15500			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	80.3			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW02

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW02

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1550			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	95.1	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	47600			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	1770			P
7439-92-1	Lead	3.0		WN	F
7439-95-4	Magnesium	12000			P
7439-96-5	Manganese	136			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	4300	B		P
7782-49-2	Selenium	5.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	15100			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	38.5			P

Color Before: D._WHITE_ Clarity Before: S._TUR Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

_____

_____

_____

_____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
CCSW03

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW03

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1340			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.6	B		F
7440-39-3	Barium	78.1	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	50100			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	2010			P
7439-92-1	Lead	62.0		N	F
7439-95-4	Magnesium	12400			P
7439-96-5	Manganese	81.3			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	4200	B		P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	15500			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	151			P

Color Before: D._WHITE_ Clarity Before: S._TUR Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW04

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW04

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6910			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	16.9			F
7440-39-3	Barium	140	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	70800			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	46.2			P
7439-89-6	Iron	13600			P
7439-92-1	Lead	758			P
7439-95-4	Magnesium	20400			P
7439-96-5	Manganese	447			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	9440			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	23000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	13.1	B		P
7440-66-6	Zinc	629			P

Color Before: D._WHITE_ Clarity Before: S._TUR Texture: _____

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
CCSW05

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW05

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2170			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	99.9	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	48500			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	2370			P
7439-92-1	Lead	7.3		WN	F
7439-95-4	Magnesium	12100			P
7439-96-5	Manganese	104			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	34.6	B		P
7440-09-7	Potassium	4210	B		P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	16000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	119			P

Color Before: D._WHITE_ Clarity Before: S._TUR Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW06

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW06

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	30900			P
7440-36-0	Antimony_	52.0	B		P
7440-38-2	Arsenic__	74.6			F
7440-39-3	Barium___	406			P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium__	19.1			P
7440-70-2	Calcium__	127000			P
7440-47-3	Chromium_	27.6			P
7440-48-4	Cobalt___	11.6	B		P
7440-50-8	Copper___	211			P
7439-89-6	Iron_____	77000			P
7439-92-1	Lead_____	4300			P
7439-95-4	Magnesium	40300			P
7439-96-5	Manganese	2080			P
7439-97-6	Mercury__	0.20	U		AV
7440-02-0	Nickel___	21.4	B		P
7440-09-7	Potassium	24200			P
7782-49-2	Selenium_	10.0	U	EN	F
7440-22-4	Silver___	10.0	U		P
7440-23-5	Sodium___	44500			P
7440-28-0	Thallium_	2.0	U		F
7440-62-2	Vanadium_	78.1			P
7440-66-6	Zinc_____	2980			P

Color Before: L._BROWN_ Clarity Before: TURBID Texture: _____

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW07

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW07

Level (low/med): LOW Date Received: 09/13/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	103	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.2	B		F
7440-39-3	Barium	21.8	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	87100			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	1250			P
7439-92-1	Lead	4.4		WN	F
7439-95-4	Magnesium	29600			P
7439-96-5	Manganese	136			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	5320			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	49200			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	24.5			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW08

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW08

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16400			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	51.2			F
7440-39-3	Barium	242			P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	7.5			P
7440-70-2	Calcium	123000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	127			P
7439-89-6	Iron	42400			P
7439-92-1	Lead	3010			P
7439-95-4	Magnesium	37300			P
7439-96-5	Manganese	1070			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	20100			P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	46600			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	38.8	B		P
7440-66-6	Zinc	1950			P

Color Before: L._BROWN_ Clarity Before: TURBID Texture: _____

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW09

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW09

Level (low/med): LOW Date Received: 09/13/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	50.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	73.5	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	108000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	87.6	B		P
7439-92-1	Lead	1.0	U	N	F
7439-95-4	Magnesium	35400			P
7439-96-5	Manganese	84.2			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	5570			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	28200			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	14.3	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW10

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW10

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	20000			P
7440-36-0	Antimony_	50.0	U		P
7440-38-2	Arsenic__	95.7			F
7440-39-3	Barium___	255			P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium__	13.6			P
7440-70-2	Calcium__	195000			P
7440-47-3	Chromium_	25.6			P
7440-48-4	Cobalt___	12.8	B		P
7440-50-8	Copper___	175			P
7439-89-6	Iron_____	54400			P
7439-92-1	Lead_____	4540			P
7439-95-4	Magnesium	62200			P
7439-96-5	Manganese	1290			P
7439-97-6	Mercury__	0.20	U		AV
7440-02-0	Nickel___	20.0	U		P
7440-09-7	Potassium	20100			P
7782-49-2	Selenium_	10.0	U	EN	F
7440-22-4	Silver___	10.0	U		P
7440-23-5	Sodium___	114000			P
7440-28-0	Thallium_	2.0	U	W	F
7440-62-2	Vanadium_	50.4			P
7440-66-6	Zinc_____	2980			P

Color Before: L._BROWN_ Clarity Before: TURBID Texture: _____

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
CCSW11

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW11

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	245			P
7440-36-0	Antimony_	50.0	U		P
7440-38-2	Arsenic__	2.0	U		F
7440-39-3	Barium___	121	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium__	5.0	U		P
7440-70-2	Calcium__	51900			P
7440-47-3	Chromium_	10.0	U		P
7440-48-4	Cobalt___	10.0	U		P
7440-50-8	Copper___	10.0	U		P
7439-89-6	Iron_____	347			P
7439-92-1	Lead_____	1.4	B	N	F
7439-95-4	Magnesium	13300			P
7439-96-5	Manganese	14.6	B		P
7439-97-6	Mercury__	0.20	U		AV
7440-02-0	Nickel___	20.0	U		P
7440-09-7	Potassium	10700			P
7782-49-2	Selenium_	10.0	U	WN	F
7440-22-4	Silver___	10.0	U		P
7440-23-5	Sodium___	11600			P
7440-28-0	Thallium_	2.0	U		F
7440-62-2	Vanadium_	10.0	U		P
7440-66-6	Zinc_____	14.7	B		P

Color Before: D._WHITE_ Clarity Before: S._TUR Texture: _____

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW12

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW12

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6760			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	33.4		S	F
7440-39-3	Barium	109	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	198000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	55.2			P
7439-89-6	Iron	16400			P
7439-92-1	Lead	1300			P
7439-95-4	Magnesium	62300			P
7439-96-5	Manganese	693			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	16400			P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	123000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	17.8	B		P
7440-66-6	Zinc	1140			P

Color Before: D._WHITE_ Clarity Before: S._TUR Texture: _____

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
CCSW13

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW13

Level (low/med): LOW Date Received: 09/13/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	474			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	3.0	B	W	F
7440-39-3	Barium	33.3	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.8			P
7440-70-2	Calcium	367000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	15.0	B		P
7439-89-6	Iron	1310			P
7439-92-1	Lead	82.5		N	F
7439-95-4	Magnesium	122000			P
7439-96-5	Manganese	783			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	16100			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	297000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	1030			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW14

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW14

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2700			P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	15.2		S	F
7440-39-3	Barium	54.1	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	373000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	16.3	B		P
7439-89-6	Iron	4730			P
7439-92-1	Lead	224		N	F
7439-95-4	Magnesium	121000			P
7439-96-5	Manganese	674			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	10900			P
7782-49-2	Selenium	1.7	B	EN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	287000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	1250			P

Color Before: D._WHITE_ Clarity Before: S._TUR Texture: _____

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW15

Lab Name: CKY_INC Contract: _____

Lab Code: CKY Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW15

Level (low/med): LOW Date Received: 09/13/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	75.2	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.1	B	W	F
7440-39-3	Barium	35.8	B		P
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	344000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	301			P
7439-92-1	Lead	7.0	B	N	F
7439-95-4	Magnesium	99700			P
7439-96-5	Manganese	79.6			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	6130			P
7782-49-2	Selenium	10.0	U	WN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	185000			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	272			P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW16

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW16

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	291000			P
7440-36-0	Antimony	2120			P
7440-38-2	Arsenic	20600			P
7440-39-3	Barium	59.5	B		P
7440-41-7	Beryllium	13.8			P
7440-43-9	Cadmium	7270			P
7440-70-2	Calcium	260000			P
7440-47-3	Chromium	194			P
7440-48-4	Cobalt	92.4			P
7440-50-8	Copper	21100			P
7439-89-6	Iron	2930000			P
7439-92-1	Lead	130		+N	F
7439-95-4	Magnesium	91900			P
7439-96-5	Manganese	141000			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	275			P
7440-09-7	Potassium	2840	B		P
7782-49-2	Selenium	10.0	U	EN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	6020			P
7440-28-0	Thallium	20.0	U	W	F
7440-62-2	Vanadium	208			P
7440-66-6	Zinc	1170000			P

Color Before: L._ORANGE Clarity Before: OPAQUE Texture: _____

Color After: D._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW17

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW17

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	232000			P
7440-36-0	Antimony	2240			P
7440-38-2	Arsenic	2780			P
7440-39-3	Barium	7.4	B		P
7440-41-7	Beryllium	15.7			P
7440-43-9	Cadmium	4070			P
7440-70-2	Calcium	268000			P
7440-47-3	Chromium	179			P
7440-48-4	Cobalt	311			P
7440-50-8	Copper	34700			P
7439-89-6	Iron	5690000			P
7439-92-1	Lead	20.0	U	N	F
7439-95-4	Magnesium	304000			P
7439-96-5	Manganese	522000			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	2140			P
7440-09-7	Potassium	2000	U		P
7782-49-2	Selenium	20.0	U	EN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	265	B		P
7440-28-0	Thallium	40.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	1100000			P

Color Before: R._ORANGE Clarity Before: OPAQUE Texture: _____

Color After: D._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW18

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW18

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	936000			P
7440-36-0	Antimony	5620			P
7440-38-2	Arsenic	40100			P
7440-39-3	Barium	5.9	B		P
7440-41-7	Beryllium	40.5			P
7440-43-9	Cadmium	18200			P
7440-70-2	Calcium	423000			P
7440-47-3	Chromium	467			P
7440-48-4	Cobalt	286			P
7440-50-8	Copper	48700			P
7439-89-6	Iron	6120000			P
7439-92-1	Lead	20.0	U	N	F
7439-95-4	Magnesium	237000			P
7439-96-5	Manganese	396000			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	832			P
7440-09-7	Potassium	2000	U		P
7782-49-2	Selenium	20.0	U	EN	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	1740	B		P
7440-28-0	Thallium	40.0	U		F
7440-62-2	Vanadium	686			P
7440-66-6	Zinc	3050000			P

Color Before: ORANGE___ Clarity Before: OPAQUE Texture: _____

Color After: Y._ORANGE Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSW19

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSW01

Matrix (soil/water): WATER Lab Sample ID: CCSW19

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	794000			P
7440-36-0	Antimony	8580			P
7440-38-2	Arsenic	6700			P
7440-39-3	Barium	25.0	U		P
7440-41-7	Beryllium	54.6			P
7440-43-9	Cadmium	14600			P
7440-70-2	Calcium	640000			P
7440-47-3	Chromium	676			P
7440-48-4	Cobalt	1260			P
7440-50-8	Copper	111000			P
7439-89-6	Iron	13900000			P
7439-92-1	Lead	20.0	U	N	F
7439-95-4	Magnesium	892000			P
7439-96-5	Manganese	1560000			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	7510			P
7440-09-7	Potassium	10000	U		P
7782-49-2	Selenium	20.0	U	EN	F
7440-22-4	Silver	50.0	U		P
7440-23-5	Sodium	644	B		P
7440-28-0	Thallium	41.2	B	E	F
7440-62-2	Vanadium	50.0	U		P
7440-66-6	Zinc	3260000			P

Color Before: R._ORANGE Clarity Before: OPAQUE Texture: _____

Color After: Y._ORANGE Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
CCSO01

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSO01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSO01

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _97.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9950			P
7440-36-0	Antimony	10.3	U		P
7440-38-2	Arsenic	19.5		N	F
7440-39-3	Barium	138			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	46.8			P
7440-70-2	Calcium	4870		*	P
7440-47-3	Chromium	146		N*	P
7440-48-4	Cobalt	10.3			P
7440-50-8	Copper	175			P
7439-89-6	Iron	25400			P
7439-92-1	Lead	506			P
7439-95-4	Magnesium	2730			P
7439-96-5	Manganese	972			P
7439-97-6	Mercury	0.04	U		AV
7440-02-0	Nickel	10.7			P
7440-09-7	Potassium	2350			P
7782-49-2	Selenium	1.0	U	WN	F
7440-22-4	Silver	2.9		N	P
7440-23-5	Sodium	304	B		P
7440-28-0	Thallium	0.41	U		F
7440-62-2	Vanadium	28.1			P
7440-66-6	Zinc	8960			P

Color Before: BROWN____ Clarity Before: _____ Texture: F._SAN

Color After: _____ Clarity After: L._YEL Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCS002

Lab Name: CKY_INC Contract: _____

Lab Code: CKY Case No.: _____ SAS No.: _____ SDG No.: CCS001

Matrix (soil/water): SOIL Lab Sample ID: CCS002

Level (low/med): LOW Date Received: 09/13/94

% Solids: 97.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12300			P
7440-36-0	Antimony	15.2			P
7440-38-2	Arsenic	28.8		N	F
7440-39-3	Barium	144			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	94.1			P
7440-70-2	Calcium	3530		*	P
7440-47-3	Chromium	12.5		N*	P
7440-48-4	Cobalt	8.4	B		P
7440-50-8	Copper	220			P
7439-89-6	Iron	22800			P
7439-92-1	Lead	656			P
7439-95-4	Magnesium	3900			P
7439-96-5	Manganese	624			P
7439-97-6	Mercury	0.08	B		AV
7440-02-0	Nickel	11.8			P
7440-09-7	Potassium	3640			P
7782-49-2	Selenium	1.0	U	WN	F
7440-22-4	Silver	4.7		N	P
7440-23-5	Sodium	213	B		P
7440-28-0	Thallium	0.42	B		F
7440-62-2	Vanadium	32.3			P
7440-66-6	Zinc	10700			P

Color Before: L. BROWN Clarity Before: _____ Texture: FINE

Color After: _____ Clarity After: YELLOW Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO03

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSO01

Matrix (soil/water): SOIL Lab Sample ID: CCSO03

Level (low/med): LOW Date Received: 09/13/94

% Solids: 73.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1270			P
7440-36-0	Antimony	13.7	U		P
7440-38-2	Arsenic	25.0		N	F
7440-39-3	Barium	12.4	B		P
7440-41-7	Beryllium	1.4	U		P
7440-43-9	Cadmium	41.3			P
7440-70-2	Calcium	2450		*	P
7440-47-3	Chromium	2.7	U	N*	P
7440-48-4	Cobalt	2.7	U		P
7440-50-8	Copper	158			P
7439-89-6	Iron	286000			P
7439-92-1	Lead	4980			P
7439-95-4	Magnesium	822	B		P
7439-96-5	Manganese	919			P
7439-97-6	Mercury	0.06	U		AV
7440-02-0	Nickel	5.5	U		P
7440-09-7	Potassium	547	U		P
7782-49-2	Selenium	1.4	U	EN	F
7440-22-4	Silver	3.0		N	P
7440-23-5	Sodium	110	B		P
7440-28-0	Thallium	0.59	B		F
7440-62-2	Vanadium	2.7	U		P
7440-66-6	Zinc	9070			P

Color Before: Y. BROWN Clarity Before: Texture: FINE

Color After: Clarity After: YELLOW Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO04

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSO01

Matrix (soil/water): SOIL Lab Sample ID: CCSO04

Level (low/med): LOW Date Received: 09/13/94

% Solids: 88.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1060			P
7440-36-0	Antimony	21.1			P
7440-38-2	Arsenic	812			P
7440-39-3	Barium	26.5	B		P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	17.5			P
7440-70-2	Calcium	12700		*	P
7440-47-3	Chromium	2.3	U	N*	P
7440-48-4	Cobalt	2.3	U		P
7440-50-8	Copper	127			P
7439-89-6	Iron	250000			P
7439-92-1	Lead	82400			P
7439-95-4	Magnesium	273	B		P
7439-96-5	Manganese	11.4			P
7439-97-6	Mercury	3.4			AV
7440-02-0	Nickel	8.2	B		P
7440-09-7	Potassium	1950			P
7782-49-2	Selenium	1.1	U	EN	F
7440-22-4	Silver	122		N	P
7440-23-5	Sodium	275	B		P
7440-28-0	Thallium	7.9			F
7440-62-2	Vanadium	2.3	U		P
7440-66-6	Zinc	878			P

Color Before: GRAY Clarity Before: Texture: FINE

Color After: Clarity After: YELLOW Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCS005

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCS001

Matrix (soil/water): SOIL_ Lab Sample ID: CCS005

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _95.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14700			P
7440-36-0	Antimony	10.5	U		P
7440-38-2	Arsenic	183			P
7440-39-3	Barium	164			P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	15.2			P
7440-70-2	Calcium	5240		*	P
7440-47-3	Chromium	15.5		N*	P
7440-48-4	Cobalt	5.3	B		P
7440-50-8	Copper	242			P
7439-89-6	Iron	67600			P
7439-92-1	Lead	5410			P
7439-95-4	Magnesium	3920			P
7439-96-5	Manganese	498			P
7439-97-6	Mercury	0.17			AV
7440-02-0	Nickel	12.3			P
7440-09-7	Potassium	4730			P
7782-49-2	Selenium	1.0	U	EN	F
7440-22-4	Silver	11.2		N	P
7440-23-5	Sodium	449	B		P
7440-28-0	Thallium	0.95	B		F
7440-62-2	Vanadium	44.7			P
7440-66-6	Zinc	2750			P

Color Before: R._BROWN_ Clarity Before: _____ Texture: FINE__

Color After: _____ Clarity After: YELLOW Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO06

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSO01

Matrix (soil/water): SOIL Lab Sample ID: CCSO06

Level (low/med): LOW Date Received: 09/13/94

% Solids: 91.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22000			P
7440-36-0	Antimony	389			P
7440-38-2	Arsenic	155			P
7440-39-3	Barium	631			P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	128			P
7440-70-2	Calcium	7520		*	P
7440-47-3	Chromium	237		N*	P
7440-48-4	Cobalt	10.7	B		P
7440-50-8	Copper	6940			P
7439-89-6	Iron	37600			P
7439-92-1	Lead	57400			P
7439-95-4	Magnesium	2220			P
7439-96-5	Manganese	790			P
7439-97-6	Mercury	4.8			AV
7440-02-0	Nickel	2860			P
7440-09-7	Potassium	1830			P
7782-49-2	Selenium	1.1	U	EN	F
7440-22-4	Silver	24.8		N	P
7440-23-5	Sodium	574	B		P
7440-28-0	Thallium	3.3		S	F
7440-62-2	Vanadium	29.6			P
7440-66-6	Zinc	170000			P

Color Before: D._GRAY Clarity Before: Texture: FINE

Color After: Clarity After: L._YEL Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO07

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSO01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSO07

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _82.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1180			P
7440-36-0	Antimony	70.6			P
7440-38-2	Arsenic	1190			P
7440-39-3	Barium	48.2	B		P
7440-41-7	Beryllium	1.2	U		P
7440-43-9	Cadmium	74.0			P
7440-70-2	Calcium	2110		*	P
7440-47-3	Chromium	2.4	U	N*	P
7440-48-4	Cobalt	2.4	U		P
7440-50-8	Copper	277			P
7439-89-6	Iron	405000			P
7439-92-1	Lead	20000			P
7439-95-4	Magnesium	3350			P
7439-96-5	Manganese	9560			P
7439-97-6	Mercury	0.16			AV
7440-02-0	Nickel	4.8	U		P
7440-09-7	Potassium	1150	B		P
7782-49-2	Selenium	1.2	U	EN	F
7440-22-4	Silver	27.9		N	P
7440-23-5	Sodium	132	B		P
7440-28-0	Thallium	3.8		S	F
7440-62-2	Vanadium	2.4	U		P
7440-66-6	Zinc	12600			P

Color Before: R._BROWN_ Clarity Before: _____ Texture: FINE__

Color After: _____ Clarity After: YELLOW Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO08

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSO01

Matrix (soil/water): SOIL Lab Sample ID: CCSO08

Level (low/med): LOW Date Received: 09/13/94

% Solids: 91.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	174			P
7440-36-0	Antimony	28.3			P
7440-38-2	Arsenic	943			P
7440-39-3	Barium	8.3	B		P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	25.4			P
7440-70-2	Calcium	1100	B	*	P
7440-47-3	Chromium	2.2	U	N*	P
7440-48-4	Cobalt	2.2	U		P
7440-50-8	Copper	94.2			P
7439-89-6	Iron	237000			P
7439-92-1	Lead	146000			P
7439-95-4	Magnesium	158	B		P
7439-96-5	Manganese	12.6			P
7439-97-6	Mercury	0.86			AV
7440-02-0	Nickel	7.1	B		P
7440-09-7	Potassium	832	B		P
7782-49-2	Selenium	1.1	U	EN	F
7440-22-4	Silver	135		N	P
7440-23-5	Sodium	89.0	B		P
7440-28-0	Thallium	7.2		S	F
7440-62-2	Vanadium	2.2	U		P
7440-66-6	Zinc	312			P

Color Before: GRAY Clarity Before: Texture: FINE

Color After: Clarity After: YELLOW Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO09

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSO01

Matrix (soil/water): SOIL Lab Sample ID: CCSO09

Level (low/med): LOW Date Received: 09/13/94

% Solids: 91.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19500			P
7440-36-0	Antimony	425			P
7440-38-2	Arsenic	124			P
7440-39-3	Barium	568			P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	1070			P
7440-70-2	Calcium	10600		*	P
7440-47-3	Chromium	198		N*	P
7440-48-4	Cobalt	15.6			P
7440-50-8	Copper	7710			P
7439-89-6	Iron	30400			P
7439-92-1	Lead	53600			P
7439-95-4	Magnesium	2290			P
7439-96-5	Manganese	828			P
7439-97-6	Mercury	2.6			AV
7440-02-0	Nickel	2590			P
7440-09-7	Potassium	1940			P
7782-49-2	Selenium	1.1	U	EN	F
7440-22-4	Silver	21.3		N	P
7440-23-5	Sodium	587	B		P
7440-28-0	Thallium	2.8		S	F
7440-62-2	Vanadium	27.5			P
7440-66-6	Zinc	171000			P

Color Before: D. GRAY Clarity Before: Texture: FINE

Color After: Clarity After: L. YEL Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO10

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSO10

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _86.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5550			P
7440-36-0	Antimony	185		N	P
7440-38-2	Arsenic	1810			P
7440-39-3	Barium	12.4	B		P
7440-41-7	Beryllium	1.2	U		P
7440-43-9	Cadmium	632			P
7440-70-2	Calcium	20600			P
7440-47-3	Chromium	9.9			P
7440-48-4	Cobalt	2.3	U		P
7440-50-8	Copper	1430			P
7439-89-6	Iron	166000		E	P
7439-92-1	Lead	18700			P
7439-95-4	Magnesium	1430			P
7439-96-5	Manganese	2190			P
7439-97-6	Mercury	0.47			AV
7440-02-0	Nickel	4.7	U		P
7440-09-7	Potassium	3650			P
7782-49-2	Selenium	1.2	U	EN	F
7440-22-4	Silver	27.1			P
7440-23-5	Sodium	243	B		P
7440-28-0	Thallium	12.0			F
7440-62-2	Vanadium	11.8			P
7440-66-6	Zinc	102000		E	P
	Cyanide	0.58	U		C

Color Before: D._BROWN_ Clarity Before: _____ Texture: F._SAN

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO11

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSO11

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _79.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9120			P
7440-36-0	Antimony	12.6	U	N	P
7440-38-2	Arsenic	131			P
7440-39-3	Barium	162			P
7440-41-7	Beryllium	1.3	U		P
7440-43-9	Cadmium	14.8			P
7440-70-2	Calcium	42400			P
7440-47-3	Chromium	3.8			P
7440-48-4	Cobalt	27.2			P
7440-50-8	Copper	1030			P
7439-89-6	Iron	127000		E	P
7439-92-1	Lead	4460			P
7439-95-4	Magnesium	3670			P
7439-96-5	Manganese	1840			P
7439-97-6	Mercury	0.19			AV
7440-02-0	Nickel	5.4	B		P
7440-09-7	Potassium	2330			P
7782-49-2	Selenium	1.3	U	EN	F
7440-22-4	Silver	13.4			P
7440-23-5	Sodium	500	B		P
7440-28-0	Thallium	0.94	B	W	F
7440-62-2	Vanadium	17.5			P
7440-66-6	Zinc	5590		E	P
	Cyanide	0.63	U		C

Color Before: YELLOW___ Clarity Before: _____ Texture: C._SAN

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO12

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSO12

Level (low/med): LOW Date Received: 09/13/94

% Solids: 84.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2370			P
7440-36-0	Antimony	27.8		N	P
7440-38-2	Arsenic	562			P
7440-39-3	Barium	36.3	B		P
7440-41-7	Beryllium	1.2	U		P
7440-43-9	Cadmium	43.8			P
7440-70-2	Calcium	1940			P
7440-47-3	Chromium	5.5			P
7440-48-4	Cobalt	2.5	B		P
7440-50-8	Copper	466			P
7439-89-6	Iron	300000		E	P
7439-92-1	Lead	19800			P
7439-95-4	Magnesium	1930			P
7439-96-5	Manganese	3090			P
7439-97-6	Mercury	0.36			AV
7440-02-0	Nickel	189			P
7440-09-7	Potassium	1030	B		P
7782-49-2	Selenium	1.2	U	EN	F
7440-22-4	Silver	25.2			P
7440-23-5	Sodium	254	B		P
7440-28-0	Thallium	1.8	B	W	F
7440-62-2	Vanadium	3.7	B		P
7440-66-6	Zinc	19800		E	P
	Cyanide	0.59	U		C

Color Before: R._BROWN Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSO13

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSO13

Level (low/med): LOW Date Received: 09/13/94

% Solids: 77.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1440			P
7440-36-0	Antimony	27.9		N	P
7440-38-2	Arsenic	1010			P
7440-39-3	Barium	12.8	B		P
7440-41-7	Beryllium	1.3	U		P
7440-43-9	Cadmium	153			P
7440-70-2	Calcium	1450			P
7440-47-3	Chromium	2.6	U		P
7440-48-4	Cobalt	2.6	U		P
7440-50-8	Copper	212			P
7439-89-6	Iron	335000		E	P
7439-92-1	Lead	19600			P
7439-95-4	Magnesium	4420			P
7439-96-5	Manganese	15900			P
7439-97-6	Mercury	0.14			AV
7440-02-0	Nickel	5.1	U		P
7440-09-7	Potassium	702	B		P
7782-49-2	Selenium	1.3	U	EN	F
7440-22-4	Silver	22.8			P
7440-23-5	Sodium	137	B		P
7440-28-0	Thallium	2.1	B	W	F
7440-62-2	Vanadium	2.6	U		P
7440-66-6	Zinc	17800		E	P
	Cyanide	0.64	U		C

Color Before: R._BROWN Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
CCSO14

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSO01

Matrix (soil/water): SOIL Lab Sample ID: CCSO14

Level (low/med): LOW Date Received: 09/13/94

% Solids: 89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2450			P
7440-36-0	Antimony	11.1	U		P
7440-38-2	Arsenic	11.4		N	F
7440-39-3	Barium	224			P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	13.8			P
7440-70-2	Calcium	17700		*	P
7440-47-3	Chromium	2.4		N*	P
7440-48-4	Cobalt	2.2	U		P
7440-50-8	Copper	18.8			P
7439-89-6	Iron	15000			P
7439-92-1	Lead	517			P
7439-95-4	Magnesium	272	B		P
7439-96-5	Manganese	37.6			P
7439-97-6	Mercury	0.67			AV
7440-02-0	Nickel	4.4	U		P
7440-09-7	Potassium	4680			P
7782-49-2	Selenium	1.1	U	EN	F
7440-22-4	Silver	2.2	U	N	P
7440-23-5	Sodium	619	B		P
7440-28-0	Thallium	0.44	U		F
7440-62-2	Vanadium	15.6			P
7440-66-6	Zinc	785			P

Color Before: YELLOW Clarity Before: Texture: FINE

Color After: Clarity After: L. YEL Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE01

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE01

Level (low/med): LOW Date Received: 09/13/94

% Solids: 93.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5320			P
7440-36-0	Antimony	10.7	U	N	P
7440-38-2	Arsenic	1.6	B	S	F
7440-39-3	Barium	48.8			P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	2.1			P
7440-70-2	Calcium	6060			P
7440-47-3	Chromium	6.6			P
7440-48-4	Cobalt	7.3	B		P
7440-50-8	Copper	12.7			P
7439-89-6	Iron	18700		E	P
7439-92-1	Lead	11.9		S	F
7439-95-4	Magnesium	3390			P
7439-96-5	Manganese	247			P
7439-97-6	Mercury	0.04	U		AV
7440-02-0	Nickel	4.7	B		P
7440-09-7	Potassium	1360			P
7782-49-2	Selenium	1.1	U	WN	F
7440-22-4	Silver	2.1	U		P
7440-23-5	Sodium	195	B		P
7440-28-0	Thallium	0.43	U		F
7440-62-2	Vanadium	32.5			P
7440-66-6	Zinc	150		E	P
	Cyanide	0.53	U		C

Color Before: BROWN Clarity Before: Texture: M._SAN

Color After: L._YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE02

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE02

Level (low/med): LOW Date Received: 09/13/94

% Solids: 94.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3300			P
7440-36-0	Antimony	10.6	U	N	P
7440-38-2	Arsenic	0.89	B		F
7440-39-3	Barium	35.8	B		P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	1.1	U		P
7440-70-2	Calcium	4090			P
7440-47-3	Chromium	3.5			P
7440-48-4	Cobalt	3.2	B		P
7440-50-8	Copper	6.3			P
7439-89-6	Iron	7630		E	P
7439-92-1	Lead	10.6		S	F
7439-95-4	Magnesium	1830			P
7439-96-5	Manganese	143			P
7439-97-6	Mercury	0.04	U		AV
7440-02-0	Nickel	4.7	B		P
7440-09-7	Potassium	780	B		P
7782-49-2	Selenium	0.21	U	EN	F
7440-22-4	Silver	2.1	U		P
7440-23-5	Sodium	145	B		P
7440-28-0	Thallium	0.42	U		F
7440-62-2	Vanadium	14.5			P
7440-66-6	Zinc	114		E	P
	Cyanide	0.53	U		C

Color Before: R._BROWN Clarity Before: Texture: M._SAN

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE03

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE03

Level (low/med): LOW Date Received: 09/13/94

% Solids: 89.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14100			P
7440-36-0	Antimony	14.3		N	P
7440-38-2	Arsenic	6.1	B		F
7440-39-3	Barium	187			P
7440-41-7	Beryllium	1.1	U		P
7440-43-9	Cadmium	37.3			P
7440-70-2	Calcium	20900			P
7440-47-3	Chromium	13.0			P
7440-48-4	Cobalt	10.4	B		P
7440-50-8	Copper	22.7			P
7439-89-6	Iron	22300		E	P
7439-92-1	Lead	249			P
7439-95-4	Magnesium	6630			P
7439-96-5	Manganese	1910			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	14.2			P
7440-09-7	Potassium	4500			P
7782-49-2	Selenium	1.1	U	WN	F
7440-22-4	Silver	2.2	U		P
7440-23-5	Sodium	248	B		P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	34.6			P
7440-66-6	Zinc	5520		E	P
	Cyanide	0.56	U		C

Color Before: D. BROWN Clarity Before: Texture: FINE

Color After: L. YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE04

Lab Name: CKY_INC Contract: _____

Lab Code: CKY Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE04

Level (low/med): LOW Date Received: 09/13/94

% Solids: 64.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	31800			P
7440-36-0	Antimony	15.6	U	N	P
7440-38-2	Arsenic	201			P
7440-39-3	Barium	305			P
7440-41-7	Beryllium	1.6	U		P
7440-43-9	Cadmium	42.1			P
7440-70-2	Calcium	26200			P
7440-47-3	Chromium	27.5			P
7440-48-4	Cobalt	13.3	B		P
7440-50-8	Copper	291			P
7439-89-6	Iron	66400		E	P
7439-92-1	Lead	7330			P
7439-95-4	Magnesium	11800			P
7439-96-5	Manganese	1420			P
7439-97-6	Mercury	0.30			AV
7440-02-0	Nickel	20.4			P
7440-09-7	Potassium	9440			P
7782-49-2	Selenium	1.6	U	EN	F
7440-22-4	Silver	13.3			P
7440-23-5	Sodium	4230			P
7440-28-0	Thallium	1.3	B	W	F
7440-62-2	Vanadium	64.5			P
7440-66-6	Zinc	6580		E	P
	Cyanide	0.78	U		C

Color Before: BROWN Clarity Before: _____ Texture: FINE

Color After: L. YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE05

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE05

Level (low/med): LOW Date Received: 09/13/94

% Solids: 71.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16000			P
7440-36-0	Antimony	27.0		N	P
7440-38-2	Arsenic	330			P
7440-39-3	Barium	188			P
7440-41-7	Beryllium	1.4	U		P
7440-43-9	Cadmium	17.1			P
7440-70-2	Calcium	2850			P
7440-47-3	Chromium	16.0			P
7440-48-4	Cobalt	4.3	B		P
7440-50-8	Copper	386			P
7439-89-6	Iron	108000		E	P
7439-92-1	Lead	11400			P
7439-95-4	Magnesium	4160			P
7439-96-5	Manganese	558			P
7439-97-6	Mercury	0.49			AV
7440-02-0	Nickel	13.5			P
7440-09-7	Potassium	5410			P
7782-49-2	Selenium	1.4	U	EN	F
7440-22-4	Silver	22.5			P
7440-23-5	Sodium	654	B		P
7440-28-0	Thallium	2.5	B		F
7440-62-2	Vanadium	43.5			P
7440-66-6	Zinc	3680		E	P
	Cyanide	0.70	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE06

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSE06

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _70.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18800			P
7440-36-0	Antimony	14.1	U	N	P
7440-38-2	Arsenic	47.0			F
7440-39-3	Barium	208			P
7440-41-7	Beryllium	1.4	U		P
7440-43-9	Cadmium	10.1			P
7440-70-2	Calcium	11500			P
7440-47-3	Chromium	17.1			P
7440-48-4	Cobalt	7.6	B		P
7440-50-8	Copper	79.6			P
7439-89-6	Iron	36000		E	P
7439-92-1	Lead	891			P
7439-95-4	Magnesium	7280			P
7439-96-5	Manganese	545			P
7439-97-6	Mercury	0.05	B		AV
7440-02-0	Nickel	10.8	B		P
7440-09-7	Potassium	4510			P
7782-49-2	Selenium	1.4	U	EN	F
7440-22-4	Silver	2.8	U		P
7440-23-5	Sodium	588	B		P
7440-28-0	Thallium	0.57	U		F
7440-62-2	Vanadium	46.3			P
7440-66-6	Zinc	1410		E	P
	Cyanide	0.71	U		C

Color Before: BROWN____ Clarity Before: _____ Texture: FINE__

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE07

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE07

Level (low/med): LOW Date Received: 09/13/94

% Solids: 83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6690			P
7440-36-0	Antimony	13.8	B	N	P
7440-38-2	Arsenic	99.0		S	F
7440-39-3	Barium	79.1			P
7440-41-7	Beryllium	1.2	U		P
7440-43-9	Cadmium	8.2			P
7440-70-2	Calcium	3220			P
7440-47-3	Chromium	6.4			P
7440-48-4	Cobalt	2.6	B		P
7440-50-8	Copper	78.1			P
7439-89-6	Iron	115000		E	P
7439-92-1	Lead	6850			P
7439-95-4	Magnesium	2610			P
7439-96-5	Manganese	421			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	4.8	U		P
7440-09-7	Potassium	2410			P
7782-49-2	Selenium	1.2	U	EN	F
7440-22-4	Silver	13.3			P
7440-23-5	Sodium	343	B		P
7440-28-0	Thallium	1.1	B		F
7440-62-2	Vanadium	25.4			P
7440-66-6	Zinc	968		E	P
	Cyanide	0.60	U		C

Color Before: R._BROWN Clarity Before: Texture: FINE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE08

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSE08

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _83.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100			P
7440-36-0	Antimony	35.0		N	P
7440-38-2	Arsenic	61.3		S	F
7440-39-3	Barium	98.3			P
7440-41-7	Beryllium	1.2	U		P
7440-43-9	Cadmium	7.2			P
7440-70-2	Calcium	3460			P
7440-47-3	Chromium	14.6			P
7440-48-4	Cobalt	3.8	B		P
7440-50-8	Copper	94.6			P
7439-89-6	Iron	68600		E	P
7439-92-1	Lead	3020			P
7439-95-4	Magnesium	3470			P
7439-96-5	Manganese	629			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	6.9	B		P
7440-09-7	Potassium	3060			P
7782-49-2	Selenium	1.2	U	EN	F
7440-22-4	Silver	3.8			P
7440-23-5	Sodium	366	B		P
7440-28-0	Thallium	0.66	B		F
7440-62-2	Vanadium	34.0			P
7440-66-6	Zinc	1090		E	P
	Cyanide	0.60	U		C

Color Before: R._BROWN_ Clarity Before: _____ Texture: FINE__

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE09

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSE09

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _68.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18700			P
7440-36-0	Antimony	20.1		N	P
7440-38-2	Arsenic	159			P
7440-39-3	Barium	184			P
7440-41-7	Beryllium	1.5	U		P
7440-43-9	Cadmium	16.1			P
7440-70-2	Calcium	13700			P
7440-47-3	Chromium	19.3			P
7440-48-4	Cobalt	8.1	B		P
7440-50-8	Copper	264			P
7439-89-6	Iron	78600		E	P
7439-92-1	Lead	6000			P
7439-95-4	Magnesium	6950			P
7439-96-5	Manganese	800			P
7439-97-6	Mercury	0.19			AV
7440-02-0	Nickel	10.3	B		P
7440-09-7	Potassium	4700			P
7782-49-2	Selenium	1.5	U	EN	F
7440-22-4	Silver	11.4			P
7440-23-5	Sodium	936	B		P
7440-28-0	Thallium	1.5	B		F
7440-62-2	Vanadium	60.9			P
7440-66-6	Zinc	2480		E	P
	Cyanide	0.73	U		C

Color Before: L._BROWN_ Clarity Before: _____ Texture: FINE__

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE10

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSE10

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _80.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5730			P
7440-36-0	Antimony	12.4	U	N	P
7440-38-2	Arsenic	40.0			F
7440-39-3	Barium	55.4			P
7440-41-7	Beryllium	1.2	U		P
7440-43-9	Cadmium	2.7			P
7440-70-2	Calcium	3570			P
7440-47-3	Chromium	5.4			P
7440-48-4	Cobalt	3.4	B		P
7440-50-8	Copper	29.0			P
7439-89-6	Iron	23200		E	P
7439-92-1	Lead	175			P
7439-95-4	Magnesium	2970			P
7439-96-5	Manganese	376			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	7.5	B		P
7440-09-7	Potassium	1440			P
7782-49-2	Selenium	1.2	U	WN	F
7440-22-4	Silver	2.5	U		P
7440-23-5	Sodium	287	B		P
7440-28-0	Thallium	0.50	U		F
7440-62-2	Vanadium	20.1			P
7440-66-6	Zinc	545		E	P
	Cyanide	0.62	U		C

Color Before: R._BROWN_ Clarity Before: _____ Texture: M._SAN

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE11

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSE11

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7480			P
7440-36-0	Antimony	12.0	U	N	P
7440-38-2	Arsenic	26.5		S	F
7440-39-3	Barium	97.4			P
7440-41-7	Beryllium	1.2	U		P
7440-43-9	Cadmium	5.7			P
7440-70-2	Calcium	3660			P
7440-47-3	Chromium	8.1			P
7440-48-4	Cobalt	5.3	B		P
7440-50-8	Copper	35.6			P
7439-89-6	Iron	25400		E	P
7439-92-1	Lead	341			P
7439-95-4	Magnesium	3210			P
7439-96-5	Manganese	447			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	9.7			P
7440-09-7	Potassium	1760			P
7782-49-2	Selenium	1.2	U	WN	F
7440-22-4	Silver	2.4	U		P
7440-23-5	Sodium	212	B		P
7440-28-0	Thallium	0.48	U		F
7440-62-2	Vanadium	30.1			P
7440-66-6	Zinc	882		E	P
	Cyanide	0.60	U		C

Color Before: D._BROWN_ Clarity Before: _____ Texture: M._SAN

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE12

Lab Name: CKY_INC Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSE12

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _77.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9240			P
7440-36-0	Antimony	12.9	U	N	P
7440-38-2	Arsenic	28.3			F
7440-39-3	Barium	100			P
7440-41-7	Beryllium	1.3	U		P
7440-43-9	Cadmium	6.1			P
7440-70-2	Calcium	6120			P
7440-47-3	Chromium	9.6			P
7440-48-4	Cobalt	7.9	B		P
7440-50-8	Copper	54.3			P
7439-89-6	Iron	32100		E	P
7439-92-1	Lead	451			P
7439-95-4	Magnesium	4010			P
7439-96-5	Manganese	594			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	11.1			P
7440-09-7	Potassium	2110			P
7782-49-2	Selenium	1.3	U	WN	F
7440-22-4	Silver	2.6	U		P
7440-23-5	Sodium	273	B		P
7440-28-0	Thallium	0.51	U		F
7440-62-2	Vanadium	30.6			P
7440-66-6	Zinc	1160		E	P
	Cyanide	0.64	U		C

Color Before: BROWN____ Clarity Before: _____ Texture: F._SAN

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE13

Lab Name: CKY_INC_____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: CCSE01

Matrix (soil/water): SOIL_ Lab Sample ID: CCSE13

Level (low/med): LOW__ Date Received: 09/13/94

% Solids: _68.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21600			P
7440-36-0	Antimony	21.6		N	P
7440-38-2	Arsenic	70.1			F
7440-39-3	Barium	207			P
7440-41-7	Beryllium	1.5	U		P
7440-43-9	Cadmium	13.5			P
7440-70-2	Calcium	9700			P
7440-47-3	Chromium	21.9			P
7440-48-4	Cobalt	9.4	B		P
7440-50-8	Copper	111			P
7439-89-6	Iron	46400		E	P
7439-92-1	Lead	1460			P
7439-95-4	Magnesium	8090			P
7439-96-5	Manganese	1060			P
7439-97-6	Mercury	0.10	B		AV
7440-02-0	Nickel	19.0			P
7440-09-7	Potassium	5500			P
7782-49-2	Selenium	1.5	U	EN	F
7440-22-4	Silver	2.9	U		P
7440-23-5	Sodium	359	B		P
7440-28-0	Thallium	1.1	B		F
7440-62-2	Vanadium	57.5			P
7440-66-6	Zinc	1620		E	P
	Cyanide	0.73	U		C

Color Before: BROWN____ Clarity Before: _____ Texture: FINE__

Color After: L._YELLOW Clarity After: CLEAR_ Artifacts: _____

Comments:

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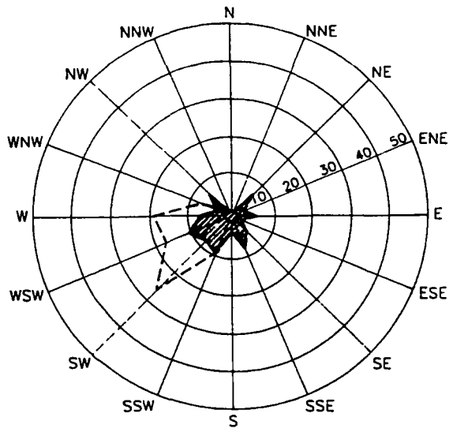
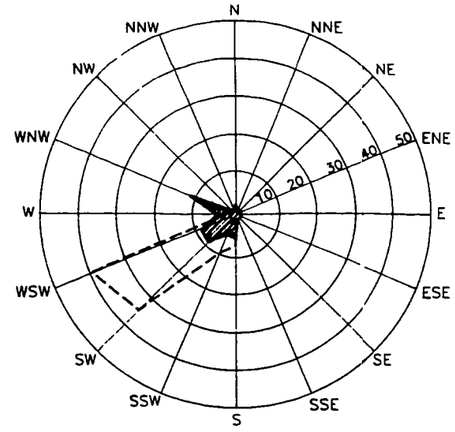


08/16/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	0.00	0.00	0.00
NNE	0.00	0.00	0.00
NE	6.56	3.08	132.59
ENE	2.42	1.54	8.97
E	4.85	1.54	36.14
ESE	1.92	1.54	5.66
SE	4.33	4.62	86.45
SSE	8.18	4.62	308.51
S	2.74	3.08	23.15
SSW	9.61	9.23	852.59
SW	8.07	26.15	1702.59••
WSW	10.32	16.92	1801.76•
W	6.93	18.46	886.41
WNW	2.89	7.69	64.44
NW	6.79	1.54	70.88
NNW	0.00	0.00	0.00

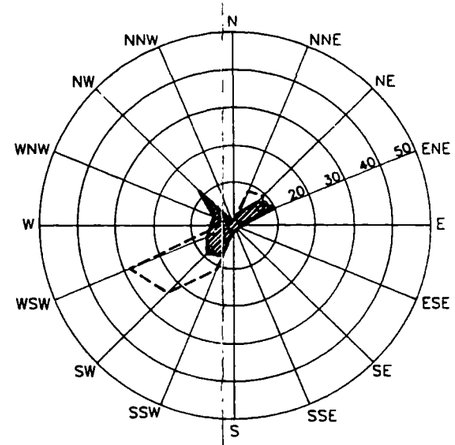
32% Present Calm



08/17/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	0.72	1.64	0.85
NNE	0.00	0.00	0.00
NE	0.00	0.00	0.00
ENE	0.00	0.00	0.00
E	0.00	0.00	0.00
ESE	0.00	0.00	0.00
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	4.93	6.56	159.22
SSW	4.70	9.84	217.61
SW	8.79	34.43	2660.21••
WSW	8.48	39.34	2827.66•
W	3.88	1.64	24.68
WNW	12.06	6.56	953.21
NW	0.00	0.00	0.00
NNW	0.00	0.00	0.00

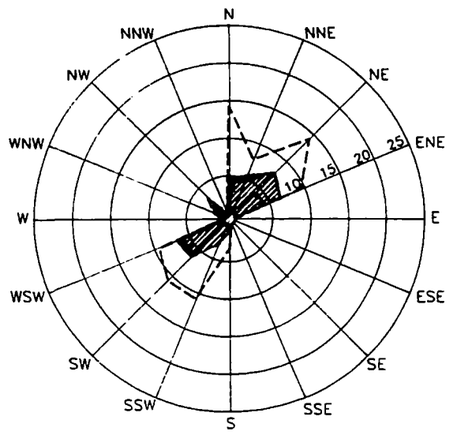
36% Present Calm



08/18/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	0.00	0.00	0.00
NNE	2.66	8.45	59.97
NE	7.97	9.86	626.17
ENE	10.14	7.04	723.92
E	0.46	1.41	0.29
ESE	0.00	0.00	0.00
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	0.00	0.00	0.00
SSW	7.65	11.27	658.86
SW	8.63	23.94	1781.39•
WSW	6.67	28.17	1253.13••
W	5.18	2.82	75.51
WNW	5.07	2.82	72.44
NW	12.37	4.23	646.70
NNW	0.00	0.00	0.00

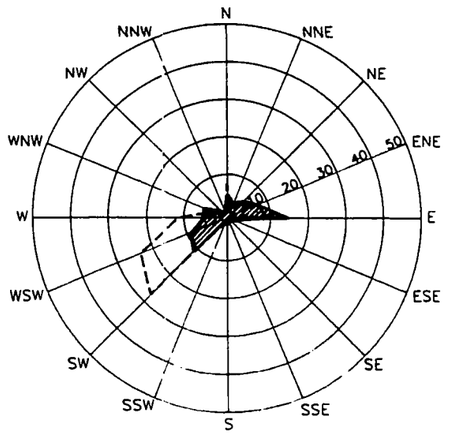
26% Present Calm



08/23/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	4.60	14.29	302.09
NNE	5.66	7.94	254.35
NE	7.96	14.29	905.64•
ENE	6.89	9.52	452.74
E	0.00	0.00	0.00
ESE	0.00	0.00	0.00
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	0.88	3.17	2.47
SSW	3.07	15.87	149.72
SW	6.51	15.87	673.03
WSW	6.99	14.29	697.94••
W	0.00	0.00	0.00
WNW	1.60	1.59	4.05
NW	2.07	3.17	13.60
NNW	0.00	0.00	0.00

34% Present Calm



08/24/94 CANON CITY

COMPASS HEADING	AVERAGE mi/hr	PERCENT WIND	DOMINANT
N	4.57	7.89	164.68
NNE	3.06	1.32	12.32
NE	4.42	3.95	77.20
ENE	7.86	7.89	488.22
E	14.56	9.21	1953.33••
ESE	0.61	1.32	0.49
SE	0.00	0.00	0.00
SSE	0.00	0.00	0.00
S	0.55	1.32	0.39
SSW	0.00	0.00	0.00
SW	11.95	27.63	3949.14•
WSW	8.54	23.68	1726.57
W	4.52	11.84	241.77
WNW	5.60	2.63	82.41
NW	0.86	1.32	0.97
NNW	0.00	0.00	0.00

21% Present Calm

LEGEND

----- Percent wind's

——— Average wind speed

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE, REMOVAL AND PREVENTION
EPA CONTRACT 68-WO-0037

TITLE:
COLLEGE OF THE CANYONS
Canon, City, Colorado
WINDROSES

T.D.D. T08-9410-014 ZTCOLCWR

ecology & environment, inc.
DENVER, COLORADO

FIG. 8

Date: 11/04/94 Drawn by: RSM Scale: _____

Canon City Sediment XRF Results: Alkali and Alkaline Earth Metals

ID	K	Ca	Rb	Sr	Ba
CCXRF101	11231	12190	40.521	203.45	503.84
CCXRF102	22856	12066	78.717	192.81	407.8
CCXRF103	11854	12572	53.906	191.43	403.4
CCXRF104	6468.4	6272.3	22.934	80.986	145.32
CCXRF111	24241	31955	113.42	360.86	550.75
CCXRF112	23534	32410	89.615	309.53	619.42
CCXRF113	22841	32394	112.73	309.24	580.75
CCXRF114	21691	17041	104.73	247.26	557.85
CCXRF115	16326	15488	74.783	227.65	591.28
CCXRF116	18421	12395	58.789	297.08	703.18
CCXRF117	19359	15206	78.445	273.98	808.34
CCXRF118	18554	13357	64.893	252.3	701.81
CCXRF119	21310	14251	75.445	241.83	892.22
CCXRF120	17415	10933	80.714	265.67	776.44
CCXRF121	23387	11765	78.987	301.49	812.54
CCXRF122	22164	12362	60.625	261.86	850.42
CCXRF123	17765	16708	73.42	287.28	749.57
CCXRF124	18377	14497	76.431	267.32	587.86
CCXRF125	22547	17452	127.64	249.46	613.4
CCXRF126	17505	15699	68.213	260.05	677.17
CCXRF127	23842	13362	80.777	222.11	673.11
CCXRF128	20700	12685	49.725	270.85	618.01
CCXRF129	20086	14401	59.938	251.07	603.93
CCXRF130	23352	26913	119.07	273.06	434.32
CCXRF131	18596	5874.1	94.712	238.32	531.02
CCXRF132	16170	20346	82.111	184.41	428.78
CCXRF133	16057	13319	59.579	319.75	532.61
CCXRF134	14175	5100.3	112.85	195.68	681.58
CCXRF135	14494	9678.6	27.148	230.92	395.21
CCXRF136	11421	6485.2	81.048	228.05	680.99
CCXRF137	23335	12133	63.585	276.23	739.95
CCXRF138	19662	15418	76.741	198.21	641.53
CCXRF139	22876	19085	74.978	224.15	690.46
CCXRF140	19392	40666	81.624	278.67	604.02

Canon City Sediment XRF Results: Heavy Metals

ID	Sn	Mo	Hg	Pb	Cd	Ag
CCXRF101	−41.567	−7.1669	−54.612	3930.3	−74.561	77.218
CCXRF102	−25.289	−5.8484	−156.66	8165.7	415.93	103.18
CCXRF103	−52.876	6.3528	13.591	2208.9	−3.8041	123.71
CCXRF104	−31.46	−21.257	36.405	7337.3	315.74	108.77
CCXRF111	−48.595	−0.3636	−11.551	7.6141	−75.675	55.755
CCXRF112	3.0799	5.6596	12.898	47.574	135.88	45.908
CCXRF113	−18.792	23.987	9.1422	76.832	−73.251	40.595
CCXRF114	−47.36	3.3394	−36.834	643.18	−30.907	76.544
CCXRF115	−6.9029	3.6024	−39.409	355.76	25.874	70.339
CCXRF116	−64.117	−3.4426	−71.235	315.74	−126.69	1.0052
CCXRF117	−39.791	11.153	−0.39294	146	−63.177	64.342
CCXRF118	−0.66511	−1.4184	−76.054	336.18	−60.642	22.073
CCXRF119	33.368	−1.5579	51.055	296.82	18.685	3.7575
CCXRF120	−12.392	−1.9238	−64.582	301.56	−89.002	18.517
CCXRF121	−60.224	0.15046	9.8475	336.47	53.149	20.061
CCXRF122	8.2395	2.367	20.679	211.22	−20.056	−39.898
CCXRF123	−3.5684	−7.6644	12.303	364.01	133.99	110.77
CCXRF124	−4.2269	−8.2789	−54.029	3348.5	25.87	−12.038
CCXRF125	−35.814	−2.225	44.75	710.65	−19.765	49.347
CCXRF126	−51.8	2.4709	4.4111	398.76	−11.477	108.94
CCXRF127	−36.131	−13.409	19.958	261.37	109.4	71.948
CCXRF128	8.7801	1.183	−22.069	124.47	51.844	29.574
CCXRF129	58.652	3.2958	−4.6853	190.96	17.056	63.132
CCXRF130	45.866	−5.7893	−12.001	5399.1	63.859	129.12
CCXRF131	−48.742	2.6117	−28.221	6420.8	17.118	57.314
CCXRF132	−33.453	−0.28	78.852	556.11	−99.058	−51.82
CCXRF133	−23.799	10.335	−57.41	412.66	41.894	6.6104
CCXRF134	−125.69	5.3335	17.088	2631.9	−72.206	120.46
CCXRF135	−71.316	7.0118	18.111	2051.6	−75.719	142.23
CCXRF136	−36.249	−3.3611	−33.817	3822.3	42.552	168.98
CCXRF137	−76.128	7.367	−42.33	4.9621	−95.544	10.329
CCXRF138	−46.843	−2.3043	75.409	40.953	−42.612	−19.158
CCXRF139	−76.597	0.07777	26.836	77.652	−45.31	30.502
CCXRF140	−17.551	0.08447	44.043	140.01	−28.451	10.281

Canon City Sediment XRF Results: Heavy Metals

ID	Zr	Sb	As	Se	U	Th
CCXRF101	165.51	43.027	−460.89	−32.855	26.728	−30.255
CCXRF102	197.34	−1.236	−562.13	−39.722	8.0751	−11.789
CCXRF103	118.64	−7.3302	−202.77	−17.366	11.511	10.665
CCXRF104	117.94	3.3934	−245.57	−61.63	30.503	−22.984
CCXRF111	452.7	27.299	17.3	−17.897	27.725	4.1571
CCXRF112	360.17	1.7574	−59.641	−1.5464	7.5494	15.065
CCXRF113	238.64	−1.0721	−23.791	−19.734	−0.27234	7.2502
CCXRF114	207.58	−51.628	−29.603	−7.4225	27.918	−6.945
CCXRF115	213.04	15.371	−22.978	11.826	12.842	14.343
CCXRF116	194.09	26.528	−91.841	−13.772	1.495	8.439
CCXRF117	194.98	22.482	84.804	−20.73	4.4399	−6.4066
CCXRF118	163.4	40.928	−82.869	8.9232	25.725	−11.395
CCXRF119	179.86	7.3906	−32.317	−49.202	4.1465	−8.8509
CCXRF120	167.42	65.589	−136.4	−4.959	7.8798	2.1302
CCXRF121	160.22	1.573	−101.79	−19.831	4.7932	−14.254
CCXRF122	198.65	−25.983	4.6401	−60.129	6.2557	−0.9556
CCXRF123	205.84	52.642	−101.38	−22.893	4.3499	−7.0659
CCXRF124	198.66	28.718	−278.36	−65.663	17.084	4.2254
CCXRF125	252.12	−9.4451	12.472	−46.272	−2.219	11.511
CCXRF126	207.75	32.359	−138.04	14.798	1.7745	−13.164
CCXRF127	260.33	−2.8226	132.26	−34.542	18.182	8.5887
CCXRF128	207.27	−19.527	15.05	−22.743	32.088	−3.908
CCXRF129	206.41	−14.228	34.266	−15.991	6.9604	−10.528
CCXRF130	228.75	−21.214	−396.12	−1.6453	21.541	6.9576
CCXRF131	209.77	−18.05	−164.94	−27.146	4.8876	12.436
CCXRF132	191.6	−27.64	28.171	−29.068	10.033	3.0278
CCXRF133	164.93	19.948	−55.796	6.4947	0.18474	9.2299
CCXRF134	164.77	62.634	−476.55	−37.87	3.2081	−20.766
CCXRF135	176.82	50.584	−36.326	36.518	−2.243	−4.4477
CCXRF136	152.32	0.39178	−92.678	−69.187	5.7395	21.628
CCXRF137	166.36	23.487	−15.717	1.7058	0.72823	−0.40229
CCXRF138	168.87	31.943	−24.453	−36.165	21.023	−10.463
CCXRF139	133.22	52.65	−95.5	−5.2198	21.818	−5.0507
CCXRF140	240.01	−27.292	−105.4	−23.296	7.6037	7.5312

Canon City Sediment XRF Results: First Row Transition Metals

ID	Ti	CrLO	CrHI	Mn	Fe	Co	Ni	Cu	Zn
CCXRF101	612.35	−261.71	177.29	2007	53891	278.76	−51.951	−43.864	1704.3
CCXRF102	2786.7	−112.72	−357.02	2244.8	111960	139.21	213.38	472.27	13058
CCXRF103	1414.3	−73.651	−104.91	8197.9	160965	−1150.5	78.655	208.41	3070.9
CCXRF104	683	−266.47	398.8	1277.8	196589	−512.14	−17.858	4.5498	3430.1
CCXRF111	3487.6	−168.79	102.15	1111.2	37096	273.34	10.578	9.1713	297.04
CCXRF112	4018.2	−38.932	152.09	1571.3	31543	125.46	−81.359	−77.639	290.17
CCXRF113	2971.3	−32.668	260.24	930.25	30051	−287.54	129.99	3.5258	430.31
CCXRF114	3135	−71.776	385.12	777.1	46664	−165.83	−63.343	−55.349	1253.3
CCXRF115	2159	6.1897	−15.332	865.61	37867	−649.87	56.129	−26.673	889.82
CCXRF116	1786	157.55	−133.12	669.87	31896	−245.84	3.6532	43.663	776.26
CCXRF117	1478.2	−161.89	229.08	824.26	30121	154.75	−116.68	−34.773	660.18
CCXRF118	1818.3	180.81	−378.4	1232.4	35878	−95.935	95.921	38.26	905.74
CCXRF119	2036.2	−118.44	436.88	725.13	31159	−0.38384	−12.237	−44.85	689.43
CCXRF120	1539.5	−288.03	−81.981	932.29	34927	285.42	−101.67	−17.175	875.15
CCXRF121	1670.1	50.735	−365.53	1005.2	36501	−1222	−50.316	−0.33934	817.48
CCXRF122	1234.1	−171.75	−499.75	878.91	29941	109.1	−81.993	1.1485	594.45
CCXRF123	2519.5	−92.751	−135.68	360.79	33980	−235.39	105.64	20.298	538.5
CCXRF124	2491.4	−117.4	−114.62	923.39	64311	692.66	−79.479	154.63	1760
CCXRF125	2974.5	14.278	−26.488	792.36	42979	256.91	−138.25	−0.01318	1407.7
CCXRF126	2399.2	−73.81	−107.49	1338.1	39328	228.92	−115.26	52.974	394.85
CCXRF127	4161.7	5.9649	200.17	1722.6	42560	189.12	−156.23	62.819	509.42
CCXRF128	2334	−44.591	−496.25	−161.32	26007	−101.02	152.85	−0.07702	557.61
CCXRF129	3764.5	−112.71	−215.86	−83.415	34480	221.74	55.526	−5.6424	324.47
CCXRF130	3374	57.166	−450.83	3463.5	64104	76.784	−97.89	257.28	5475.9
CCXRF131	2570.5	−66.624	651.04	699.88	95644	1466.2	−12.782	96.956	2829.1
CCXRF132	1720.7	5.5807	−318.47	1403.2	35615	625.65	−95.893	106.01	4058.9
CCXRF133	5313.4	−45.847	456.92	850	57055	−86.645	89.532	−44.251	561.88
CCXRF134	1525.9	31.742	5.0506	1093.2	90589	−421.49	2.9466	−5.8621	810.45
CCXRF135	2105.7	−87.613	−36.094	3788.4	127567	1186.8	−49.533	−136.07	1818.3
CCXRF136	1484.6	−77.493	−74.823	1110	120803	1480.8	−296.19	34.596	749.26
CCXRF137	3208.6	−6.7244	−323.56	−82.774	24610	39.527	−113.95	7.3948	234
CCXRF138	1809.4	1.5864	−230.2	863.73	14914	20.526	136.8	−50.256	1385.2
CCXRF139	1273.9	−93.211	181.96	386.4	14106	−208.68	−117.18	−43.708	85.831
CCXRF140	2760.1	−120.13	−88.631	3447.2	31411	179.59	128.55	−167.39	5289

Canon City Soil XRF Results: Alkali and Alkaline Earth Metals

ID	K	Ca	Rb	Sr	Ba
CCXRF035	10952	9701	47.756	182.76	508.43
CCXRF036	1456.7	13891	3.7008	−0.24352	99.187
CCXRF037	14388	21639	83.081	262.98	536.59
CCXRF038	11489	38625	30.066	212.93	395.07
CCXRF039	4513.6	6426.4	45.938	85.31	139.78
CCXRF040	8928.3	38646	40.41	13.463	−2.5773
CCXRF041	6413.4	27231	82.857	40.892	38.75
CCXRF042	6675.9	44441	35.538	150.47	251.97
CCXRF043	3101.5	6218	112.64	97.969	264.23
CCXRF044	382.65	1516.5	−5.251	26.428	−10.676
CCXRF045	1343.6	2593.5	116.96	52.695	2.4112
CCXRF046	21846	15883	51.558	316.83	612.28
CCXRF047	9080.3	8400.6	240.66	140.5	242.76
CCXRF048	1367	1722.1	8.7049	15.304	5.5736
CCXRF049	239.48	2894.9	9.4305	35.184	6.7639
CCXRF050	16496	14051	54.728	274.69	704.9
CCXRF051	1279.4	9320.6	18.394	34.739	24.807
CCXRF052	793.63	2064.7	66.525	17.974	0.94899
CCXRF053	905.05	3067.1	−28.297	32.645	−9.4875
CCXRF054	1298.7	4467.4	16.027	48.978	13.388
CCXRF055	3828.6	19702	37.056	76.921	137.34

Canon City Soil XRF Results: Alkali and Alkaline Earth Metals

ID	K	Ca	Rb	Sr	Ba
CCXRF001	2832.2	2388.7	25.311	48.504	60.791
CCXRF002	886.16	1349.5	5.4575	4.9074	3.9292
CCXRF003	1367.3	1978.7	7.1388	5.716	35.104
CCXRF004	21666	7619.2	135.58	238.68	707.8
CCXRF005	3891.7	13372	68.266	68.133	30.181
CCXRF006	20183	10129	102.14	207.95	775.93
CCXRF007	20544	12032	89.281	232.95	589.69
CCXRF008	12473	17197	37.655	58.41	51.853
CCXRF009	825.08	1704.4	9.476	0.8865	9.5403
CCXRF010	21468	11621	85.808	269.76	692.98
CCXRF011	4091.8	14197	10.54	76.831	151.94
CCXRF012	9852.5	14686	61.123	155.56	259.88
CCXRF013	6493	7226.4	11.569	202.1	638.55
CCXRF014	7288.3	12360	43.62	249.83	384.35
CCXRF015	965.37	2682.3	0.69806	28.361	18.155
CCXRF016	22785	8602.7	107.4	253.5	610.45
CCXRF017	22993	6914.2	139.97	281.91	564.01
CCXRF018	22893	8574	116.04	270.95	677.41
CCXRF019	23846	9799.1	54.199	261.86	743.84
CCXRF020	13757	28582	80.79	181.51	530.39
CCXRF021	1463.2	4167.2	−6.889	2.8958	−1.984
CCXRF022	231.43	2297.1	−14.766	5.2307	16.582
CCXRF023	19407	9970.2	126.27	291.44	543.17
CCXRF024	2733.9	2762.2	91.119	28.817	56.492
CCXRF025	749.76	1254.2	96.796	23.868	2.369
CCXRF026	1109.5	2215.7	133.78	45.496	39.804
CCXRF027	27762	9001.4	98.442	268.83	723.5
CCXRF028	17050	17468	101.87	269.08	363.35
CCXRF029	21202	11805	72.247	291.89	775.74
CCXRF030	18692	11688	58.191	179.66	809.14
CCXRF031	7644.7	7688.6	137.17	237.57	741.72
CCXRF032	1329.2	2968.4	15.022	19.002	−4.6837
CCXRF033	15963	7478.3	94.371	150.42	408.85
CCXRF034	8782.3	8634	94.14	165.74	602.75

Canon City Soil XRF Results: Heavy Metals

ID	Zr	Sb	As	Se	U	Th
CCXRF035	172.52	84.365	−355	−50.765	−14.456	−2.132
CCXRF036	27.232	101.22	978.01	−65.905	0.6932	−25.603
CCXRF037	213.88	1.8741	−743.89	−3.552	11.671	−10.63
CCXRF038	193.32	38.635	−969.84	−31.011	24.072	−29.101
CCXRF039	89.538	87.473	−1176	31.352	10.241	−21.542
CCXRF040	113.89	28.38	626.58	−29.276	18.088	−33.074
CCXRF041	109.32	−26.873	753.37	−70.039	−1.966	5.9014
CCXRF042	119.99	20.778	−320.02	−29.715	−6.5348	6.2173
CCXRF043	45.274	141.05	−1165.6	−79.725	−2.8466	25.235
CCXRF044	21.138	124.59	−1074.6	−29.468	5.4045	−25.545
CCXRF045	−3.454	26.657	1087.1	−101.8	−11.887	20.217
CCXRF046	247.69	34.09	−70.327	−19.156	0.25259	0.31128
CCXRF047	63.139	56.611	−2431.5	−180.44	−45.434	185.04
CCXRF048	26.293	78.917	−843.06	−0.02291	12.996	−23.639
CCXRF049	7.3186	9.8239	−149.38	−78.095	8.268	−15.941
CCXRF050	200.3	38.276	−232.7	−49.033	1.8235	−3.8842
CCXRF051	19.925	22.759	−330.26	−13.574	−0.23104	−16.117
CCXRF052	9.4196	97.756	−1023.8	14.047	−4.0897	−11.416
CCXRF053	36.136	35.974	−687.82	−48.795	22.476	−28.2
CCXRF054	22.922	4.4312	−936.27	72.185	7.2656	−7.1971
CCXRF055	57.622	97.334	−98.578	12.766	−16.262	27.563

Canon City Soil XRF Results: Heavy Metals

ID	Zr	Sb	As	Se	U	Th
CCXRF001	63.082	15.123	−803.61	1.4176	16.127	−16.244
CCXRF002	6.431	147.64	−1157.3	11.862	−0.57267	−5.1741
CCXRF003	37.819	−6.9814	−529.42	−69.448	0.44669	−12.503
CCXRF004	297.36	37.633	52.54	−19.945	21.389	10.552
CCXRF005	86.365	48.795	−2074.7	−110.49	−14.752	103.18
CCXRF006	237.5	3.1217	393.44	0.53701	14.803	−2.4371
CCXRF007	187.87	−7.8268	−537.81	−60.52	7.1593	5.4672
CCXRF008	137.04	21.256	−602.14	4.2483	18.989	−38.618
CCXRF009	40.506	121.23	−1230.4	−6.9119	4.8425	−37.36
CCXRF010	246.84	26.464	−349.77	−35.304	8.8995	15.6
CCXRF011	87.632	44.233	−1680.8	−3.1602	4.5156	−5.838
CCXRF012	135.65	64.271	−814.53	1.4717	6.5466	−20.898
CCXRF013	197.12	222.83	−2373.9	86.075	15.324	−21.128
CCXRF014	113.83	96.076	−988.28	1.782	4.3643	−13.319
CCXRF015	19.885	24.795	−472.52	−97.36	10.972	−24.713
CCXRF016	345.74	44.602	−78.594	20.582	17.864	3.7568
CCXRF017	288.39	80.435	−489.61	−73.347	1.3534	−6.5008
CCXRF018	215.17	21.437	−59.49	−40.642	−20.048	12.16
CCXRF019	209.44	56.061	−119.14	−21.142	3.2792	−2.0976
CCXRF020	188.5	42.928	−171.47	−32.313	26.921	−38.981
CCXRF021	15.472	138.65	−422.19	−23.952	11.55	−10.796
CCXRF022	19.146	108.25	−399.45	−38.398	8.1139	−23.715
CCXRF023	228.83	75.469	−296.53	−29.632	6.8575	28.913
CCXRF024	28.883	100.21	−951.84	−7.0604	−8.9967	11.337
CCXRF025	−6.7451	42.249	−1161.5	−101.79	−13.904	29.045
CCXRF026	−37.99	67.787	−2724.3	−77.926	−39.503	267.11
CCXRF027	295.9	3.1227	−97.474	−21.031	23.718	−4.2757
CCXRF028	180.57	100.43	−1606.9	10.651	−2.6376	47.708
CCXRF029	241.5	65.059	23.95	−8.3258	7.3008	6.9104
CCXRF030	191.3	14.771	−146.92	−49.229	26.152	−3.3344
CCXRF031	110.31	337.11	−2031.9	40.51	−31.518	121.74
CCXRF032	31.802	−5.1245	−771.88	−12.407	10.087	−23.005
CCXRF033	192.69	24.486	−964.6	−21.588	−7.809	−9.0479
CCXRF034	156.76	164.37	−2399.9	−33.54	−11.874	8.8038

Canon City Soil XRF Results: Heavy Metals

ID	Sn	Mo	Hg	Pb	Cd	Ag
CCXRF035	57.985	1.945	377.23	4733.7	547.85	243.01
CCXRF036	7.3097	0.56019	−141.58	1445.1	183.27	37.573
CCXRF037	−32.926	−5.5705	12.894	3615.5	496.13	312.97
CCXRF038	−68.184	−13.291	27.437	4927.1	−13.458	198.78
CCXRF039	17.161	6.8447	35.075	8222.8	450.65	286.45
CCXRF040	31.908	−14.303	−117.75	10679	591.67	51.836
CCXRF041	−24.074	−7.1078	−4.1838	9634	578.67	162.49
CCXRF042	−81.693	2.1588	−40.97	3694.5	−18.51	47.2
CCXRF043	253.69	16.969	363.97	15409	171.29	126.41
CCXRF044	109.86	−3.5253	36.28	6665.1	−370.66	163.25
CCXRF045	38.741	7.2425	−60.159	13213	302.26	199.99
CCXRF046	10.765	4.074	−13.364	296.68	61.182	−64.124
CCXRF047	63.24	31.895	44.327	37939	301.71	271.44
CCXRF048	−61.835	−3.8369	43.967	6089.5	126.87	138.88
CCXRF049	6.0603	−8.4376	−49.643	5505.6	98.669	120.66
CCXRF050	42.11	−1.7731	−44.386	1388.8	−101.44	99.402
CCXRF051	59.163	−6.6534	145.6	5549.7	402.37	153.26
CCXRF052	65.957	−3.5327	−111.21	9976.6	235.46	201.16
CCXRF053	−28.89	−8.8037	−38.461	7443.9	−62.84	81.782
CCXRF054	108.5	1.0748	−140.63	9910.5	325.67	296.97
CCXRF055	12.445	11.276	46.354	6728.6	106.84	163.19

Canon City Soil XRF Results: Heavy Metals

ID	Sn	Mo	Hg	Pb	Cd	Ag
CCXRF001	−90.635	−16.96	55.303	6109.9	120.94	5.6417
CCXRF002	33.703	−0.53808	−52.773	8683.2	43.396	80.011
CCXRF003	−2.0505	−0.86886	−117.62	3301.9	−69.566	138.52
CCXRF004	−9.8294	8.3123	23.84	802.58	−23.052	38.357
CCXRF005	143.48	11.515	92.566	32770	224.66	199.83
CCXRF006	−4.8917	−7.2383	−37.946	3976.5	−116.27	80.561
CCXRF007	11.14	1.0309	−12.117	4685.7	−23.349	83.91
CCXRF008	12.819	−6.9382	42.414	9285.3	230.2	221.98
CCXRF009	39.857	−8.3203	105.15	10089	−49.832	144.9
CCXRF010	3.9429	−0.01339	0.67926	1855.2	101.5	126.69
CCXRF011	20.248	11.28	109.07	9722.8	−156.99	−20.118
CCXRF012	7.4739	−5.3737	−117.98	5564.8	−66.242	170.14
CCXRF013	457.11	28.855	−438.38	30748	378.01	183.5
CCXRF014	147.21	12.698	−114.57	11173	−91.731	113.87
CCXRF015	−4.2518	−3.9968	−49.223	9038.1	263.2	262.99
CCXRF016	−55.034	−6.1231	−5.9139	603.68	16.581	59.699
CCXRF017	20.234	1.0805	0.97754	11070	−54.952	162.31
CCXRF018	−74.018	11.656	−19.207	514.3	−57.467	135.08
CCXRF019	−12.111	3.1866	−58.634	660.74	32.738	19.276
CCXRF020	−8.0374	3.7054	−71.838	10641	−36.415	123.69
CCXRF021	−59.362	−3.9487	103.07	8474.7	15.173	172.67
CCXRF022	6.4075	2.5328	−45.965	2854.1	−241.45	99.774
CCXRF023	−91.898	9.6198	−75.934	4427.7	−80.601	182.85
CCXRF024	65.421	21.106	35.151	9435.1	242.35	452.5
CCXRF025	24.455	25.332	146.79	11542	198.92	66.397
CCXRF026	119.49	33.522	8.2982	48141	232.05	10.84
CCXRF027	−72.917	−9.7596	−9.0675	473.89	91.155	24.426
CCXRF028	−9.7216	12.688	−56.025	12501	20.3	31.042
CCXRF029	−67.143	−2.2106	−36.131	622.12	−27.915	14.836
CCXRF030	−33.582	−3.1532	−6.6871	426.88	74.699	41.01
CCXRF031	475.78	71.074	−81.879	34337	1189.3	194.34
CCXRF032	67.954	6.5649	−129.42	8464.5	179.04	136.6
CCXRF033	63.647	9.4933	3.0961	5221	−125.19	49.824
CCXRF034	523.85	45.001	29.859	22770	307.98	97.141

Canon City Soil XRF Results: First Row Transition Metals

ID	Ti	CrLO	CrHI	Mn	Fe	Co	Ni	Cu	Zn
CCXRF035	1635.7	−141.32	377.55	9568.1	104332	−146.35	166.57	3394.7	112734
CCXRF036	309.1	127.53	431.45	10603	195866	1958.4	−256.59	363.57	2897.3
CCXRF037	1975.1	93.951	−198.78	4709	106683	1206.5	−152.85	655.82	20184
CCXRF038	1685.7	−99.133	−136.64	1457.2	105977	1012.5	−365.47	572.2	9625.6
CCXRF039	573.06	−73.903	−194.51	22955	251555	−1188.9	−265.45	349.74	15959
CCXRF040	525.83	−327.22	359.97	2272.9	143068	222.85	−98	669.93	47363
CCXRF041	410.19	−135.62	339.65	1133.3	137849	757.33	88.465	690.51	38815
CCXRF042	714.82	80.564	248.98	1367.1	138126	3046.6	−672.66	549.2	4868.9
CCXRF043	264.38	−209.86	266.33	3641.1	192337	1074.4	1275.6	1820.3	43174
CCXRF044	−43.849	−87.449	276.04	788.9	273262	741.69	−563.27	−181.96	3171.4
CCXRF045	−2.0455	52.14	−50.441	12952	331791	−269.61	−100.84	−129.92	7251.9
CCXRF046	1537.2	−125.14	24.729	539.07	17067	102.72	78.994	19.337	843.07
CCXRF047	1242.7	−259.06	−339.27	441.72	96109	2098.1	−99.124	1258	13561
CCXRF048	15.727	−128.76	−459.4	2216.2	247045	1441.8	−326.35	−97.816	1870
CCXRF049	−20.788	−13.785	438.75	4018.2	258413	1241.8	23.146	10.929	6783.2
CCXRF050	2706.6	9.1905	−501.35	680.92	102176	−466.26	45.601	−173.69	784.42
CCXRF051	184.21	−181.14	−155.59	69349	247321	−8899.6	857.75	32.946	32453
CCXRF052	27.795	35.237	−27.402	2483.5	248960	3.411	271.2	50.574	8183.6
CCXRF053	−27.672	89.546	211.83	1662.1	230579	467.06	256.02	223.21	12705
CCXRF054	120.04	−125.44	−181.16	3448.7	286194	724.68	−85.108	−301.62	3559.7
CCXRF055	434.16	−144.59	−261.06	1669.3	210818	−85.049	141.61	27.656	2172.2

Canon City Soil XRF Results: First Row Transition Metals

ID	Ti	CrLO	CrHI	Mn	Fe	Co	Ni	Cu	Zn
CCXRF001	330.64	11.839	−108.91	104.65	226594	2359.8	−390.12	−77.991	4545.7
CCXRF002	−63.076	−177.84	−389.2	1379	288614	3096.5	21.682	−5.466	2818.2
CCXRF003	84.619	−35.37	42.111	2153.4	213092	2315.6	−513	20.401	6022.7
CCXRF004	2472.6	−110.7	−340.48	2517.6	49051	327.32	−41.03	−97.131	2642.5
CCXRF005	378.55	−62.59	116.89	−161.8	67764	707.11	254.07	42.971	840.48
CCXRF006	2386.5	−178.99	492.07	−147.08	49057	−48.321	−9.5087	235.57	2201.8
CCXRF007	2514.1	−76.594	267.09	821.42	74949	−172.71	−101.39	250.96	2609.8
CCXRF008	1106.2	−29.263	−322.13	3681.6	87921	606.87	−194.85	606.51	34127
CCXRF009	38.077	−24.371	−478.57	−310.24	251324	2980.6	−556.73	−158.01	2503.5
CCXRF010	2913.4	−220.26	102.27	4573.3	55768	−449.6	122.9	161.98	7104
CCXRF011	553.8	50.238	−261.84	2335.7	200480	1494.1	−338.76	162.09	1995.9
CCXRF012	1161.1	−112.17	442.15	8569	166318	27.696	35.709	747.39	9170.1
CCXRF013	1057.9	546.09	307.74	656.48	29957	540.97	2758.5	6066.6	124918
CCXRF014	962.94	7.1189	406.06	5225.1	129349	−261.73	1039.3	2186.7	37834
CCXRF015	−55.228	−246.97	−453.63	9554.9	293531	1975.9	−786.22	−114.15	7833.7
CCXRF016	3463.2	−31.506	−30.61	1153.8	49200	−302.34	−59.747	121.26	1642.2
CCXRF017	2685.5	−171.41	137.21	976.58	60302	859.97	−176.53	463.84	4556.3
CCXRF018	2387.3	−386.59	56.703	1358.8	49613	−293.87	86.427	125.17	539.66
CCXRF019	2687	−140.63	−187.51	576.95	36260	−43.099	−69.696	59.322	507.36
CCXRF020	1962.7	−162.22	−458.46	1054.6	89797	205.45	41.126	678.37	4168.6
CCXRF021	87.418	70.816	−104.56	4150.5	269206	285.52	−663.16	166.58	2995.8
CCXRF022	26.048	−88.893	112.18	7176.7	189010	3298.6	−673.91	−3.3773	3184.6
CCXRF023	2300.2	210.11	604.41	1271.5	53260	43.277	−200.17	315.44	5226.2
CCXRF024	260.04	70.996	−321.51	2348.3	277817	3585.8	−1194.5	248.2	2871
CCXRF025	−0.97025	−63.818	−593.31	2627.3	358857	−868.06	402.12	−191.85	2310.9
CCXRF026	20.144	−66.914	75.386	248.54	61124	736.49	16.726	−172.14	266.32
CCXRF027	3692.1	−141.28	146.87	814.87	36415	398.76	−80.105	54.794	671.96
CCXRF028	2426.6	−61.606	83.774	581.44	63046	166.31	−210.62	470.04	11656
CCXRF029	2820.2	287.05	169.68	940.1	31410	604.08	168.13	276.49	13945
CCXRF030	1995.1	−49.703	346.41	5029	28371	734.49	25.56	242.52	9407
CCXRF031	1535.3	39.976	391.19	1374.5	31199	221.55	3729.7	5749.4	137323
CCXRF032	99.731	−135.27	399.38	3019.4	245820	528.96	−268.2	−143.44	2386
CCXRF033	2346.1	−147.09	476.66	952.28	102819	2305.6	−231.54	432.46	8184.7
CCXRF034	1300.5	70.812	696.21	2026.5	35921	160.1	3207.9	4805.8	115668

APPENDIX E
XRF RAW DATA

TSP CHEMISTRY BENCHSHEET
(Final Weight)

SDG No.: 4H03 Method: E&E Bid&PM-10 Reviewer: SJ

Analyte: TSP Analyst: _____ Reference: E&E Bid&PM-10 Review Date: 9/12/94

Filt. ID No.	Client Sample ID	Date:8/29 Time:14:00 (g)	Date:8/30 Time:9:20 (g)	Initial Difference (g)	Date:8/31 Time: 13:30 (g)	Sec Diff. (g)	Date: 9/4 Time: 16:15 (g)	Third Difference (g)	Final Weight (g)	Inital Weight (g)	TSP Result (g)
25	CC-A-29	4.2029	4.2055	-0.0026	4.1992	0.0063	4.2049	-0.0057	4.2049	4.1853	0.0196
26	CC-A-4	3.9483	3.9560	-0.0077	4.0191	-0.0631	4.0056	0.0135	4.0056	3.9668	0.0388
27	CC-A-19	4.2497	4.2543	-0.0046	4.2679	-0.0136	4.2647	0.0032	4.2647	4.2439	0.0208
28	CC-A-24	4.3070	4.3099	-0.0029	4.3132	-0.0033	4.3189	-0.0057	4.3189	4.2999	0.0190
29	CC-A-14	4.1570	4.1513	0.0057	4.1703	-0.0190	4.1839	-0.0136	4.1839	4.1328	0.0511
30	CC-A-9	4.0269	4.0284	-0.0015	4.0560	-0.0276	4.0577	-0.0017	4.0577	4.0209	0.0368
31	CC-A-34	4.1915	4.1989	-0.0074	4.1868	0.0121	4.1879	-0.0011	4.1879	4.1493	0.0386
32	CC-A-39	4.3269	4.3234	0.0035	4.2962	0.0272	4.3040	-0.0078	4.3040	4.2903	0.0137
33	CC-A-30	4.0578	4.0728	-0.0150	4.0625	0.0103	4.0644	-0.0019	4.0644	4.0429	0.0215
34	CC-A-5	3.9670	3.9692	-0.0022	4.0082	-0.0390	4.0161	-0.0079	4.0161	3.9741	0.0420
35	CC-A-20	4.1881	4.1885	-0.0004	4.1938	-0.0053	4.2027	-0.0089	4.2027	4.1818	0.0209
36	CC-A-25	4.3757	4.3804	-0.0047	4.3804	0.0000	4.3864	-0.0060	4.3864	4.3700	0.0164
37	CC-A-15	4.1289	4.1314	-0.0025	4.1435	-0.0121	4.1470	-0.0035	4.1470	4.1015	0.0455
38	CC-A-10	4.3378	4.3349	0.0029	4.3590	-0.0241	4.3718	-0.0128	4.3718	4.2987	0.0731
39	CC-A-35	4.2768	4.2778	-0.0010	4.2605	0.0173	4.2678	-0.0073	4.2678	4.2246	0.0432
40	CC-A-40	4.0829	4.0804	0.0025	4.0830	-0.0026	4.0495	0.0335	4.0495	3.9991	0.0504

Comments: _____

TSP CHEMISTRY BENCHSHEET

(Final Weight)

SDG No.: 4H03 Method: E&E Bid&PM-10 Reviewer: SJ

Analyte: TSP Analyst: RBT SJ Reference: E&E Bid&PM-10 Review Date: 9/9/94

Filt. ID No.	Client Sample ID	Date:8/24 Time:7:30am (g)	Date:8/25 Time:7:30p (g)	Initial Difference (g)	Date:8/26 Time:2:46:0 (g)	Sec Diff. (g)	Date: Time: (g)	Third Difference (g)	Final Weight (g)	Inital Weight (g)	TSP Result (g)
1	CC-A-26	4.2085	4.1771	0.0314	4.2018	-0.0247			4.2018	4.1686	0.0332
2	CC-A-1	4.3242	4.3005	0.0237	4.3254	-0.0249			4.3254	4.2917	0.0337
3	CC-A-16	4.3384	4.3161	0.0223	4.3414	-0.0253			4.3414	4.3231	0.0183
4	CC-A-21	4.1993	4.1742	0.0251	4.2004	-0.0262			4.2004	4.1726	0.0278
5	CC-A-11	4.2161	4.1886	0.0275	4.2127	-0.0241			4.2127	4.1857	0.0270
6	CC-A-6	4.3620	4.3317	0.0303	4.3438	-0.0121			4.3438	4.3424	0.0014
7	CC-A-31	4.2965	4.2927	0.0038	4.2930	-0.0003			4.2930	4.2765	0.0165
8	CC-A-36	4.1328	4.1536	-0.0208	4.1348	0.0188			4.1348	4.1233	0.0115
9	CC-A-27	4.1901	4.1559	0.0342	4.1811	-0.0252			4.1811	4.1363	0.0448
10	CC-A-2	4.2865	4.2562	0.0303	4.2875	-0.0313			4.2875	4.2639	0.0236
11	CC-A-17	4.3650	4.3393	0.0257	4.3672	-0.0279			4.3672	4.3341	0.0331
12	CC-A-22	4.2255	4.2020	0.0235	4.2258	-0.0238			4.2258	4.1847	0.0411
13	CC-A-12	4.2001	4.1736	0.0265	4.2057	-0.0321			4.2057	4.1467	0.0590
14	CC-A-7	4.3470	4.3159	0.0311	not used				4.3757	4.3078	0.0679
15	CC-A-32	4.3444	4.3514	-0.0070	4.3268	0.0246			4.3158	4.3131	0.0027
16	CC-A-37	4.1541	4.1856	-0.0315	4.1628	0.0228			4.1628	4.1022	0.0606
17	CC-A-28	4.1273	4.1176	0.0097	4.0970	0.0206			4.0970	4.0841	0.0129
18	CC-A-3	4.2243	4.1949	0.0294	4.2283	-0.0334			4.2283	4.2028	0.0255
19	CC-A-18	4.3675	4.3359	0.0316	4.3658	-0.0299			4.3658	4.3264	0.0394
20	CC-A-23	4.1822	4.1537	0.0285	4.1788	-0.0251			4.1788	4.1322	0.0466
21	CC-A-13	4.1960	4.1693	0.0267	4.1948	-0.0255			4.1948	4.1613	0.0335
22	CC-A-8	4.0786	4.0464	0.0322	4.0788	-0.0324			4.0788	4.0412	0.0376
23	CC-A-33	4.3315	4.3442	-0.0127	4.3220	0.0222			4.3220	4.2517	0.0703
24	CC-A-38	4.3394	4.3857	-0.0463	4.3608	0.0249			4.3608	4.3418	0.0190

TSP CHEMISTRY BENCHSHEET
(Initial Weight)

SDG No.: 4H03 Method: E&E Bid&PM-10 Reviewer: SJ

Analyte: TSP Analyst: SI&RB Reference: E&E Bid&PM-10 Review Date: 9/8/94

Filt. ID No.	Lab Sample ID	Initial Filter (g)	Date:8/15 Time: 15:0 (g)	Initial Difference (g)	Date: 8/16 Time: 08:00 (g)	Sec Diff. (g)	Date: 8/17 Time: 14:00 (g)	Third Difference (g)	Date: Time: (g)	Fourth Difference (g)	Initial Weight (g)
31	4H03-31	4.1787	4.1493	0.0294	4.1828	-0.0335	4.1779	-0.0317			4.1493
32	4H03-32	4.3161	4.2903	0.0258	4.3134	-0.0231	4.3116	0.0018			4.2903
33	4H03-33	4.0749	4.0429	0.0320	4.0719	-0.0290	4.0679	0.0040			4.0429
34	4H03-34	4.0068	3.9741	0.0327	4.0013	-0.0272	3.9970	0.0043			3.9741
35	4H03-35	4.2142	4.1818	0.0324	4.2117	-0.0299	4.2079	0.0038			4.1818
36	4H03-36	4.3995	4.3700	0.0295	4.3970	-0.0270	4.3920	0.0050			4.3700
37	4H03-37	4.1238	4.1015	0.0223	4.1249	-0.0234	4.1213	0.0036			4.1015
38	4H03-38	4.3598	4.2987	0.0611	4.3568	-0.0581	4.3524	0.0044			4.2987
39	4H03-39	4.2542	4.2246	0.0296	4.2487	-0.0241	4.2459	0.0028			4.2246
40	4H03-40	4.0552	3.9991	0.0561	4.0542	-0.0551	4.0493	0.0049			3.9991
41	4H03-41	4.2009	4.1736	0.0273	4.1998	-0.0262	4.1942	0.0056			4.1736
42	4H03-42	4.3078	4.2862	0.0216	4.3142	-0.0280	4.3079	0.0063			4.2862
43	4H03-43	4.2271	4.1990	0.0281	4.2252	-0.0262	4.1954	0.0298			4.1990
44	4H03-44	4.0648	4.0312	0.0336	4.0680	-0.0368	4.0555	0.0125			4.0312
45	4H03-45	4.1889	4.1515	0.0374	4.1908	-0.0393	4.1775	0.0133			4.1515
46	4H03-46	4.3242	4.2899	0.0343	4.3285	-0.0386	4.3106	0.0179			4.2899
47	4H03-47	4.2367	4.2017	0.0350	4.2388	-0.0371	4.2232	0.0156			4.2017
48	4H03-48	4.1251	4.0882	0.0369	4.1317	-0.0435	4.1115	0.0202			4.0882
49	4H03-49	4.1350	4.0919	0.0431	4.1357	-0.0438	4.1146	0.0211			4.0919
50	4H03-50	4.2951	4.2439	0.0512	4.2939	-0.0500	4.2669	0.0270			4.2439

Comments:
The 8/15 3pm (lightest weight) was used for final.

TOTAL SUSPENDED SOLIDS (TSP) CHEMISTRY BENCHSHEET

(Initial Weight)

SDG No.: 4H03 Method: E&E Bid&PM-10 Reviewer: SJL

Analyte: TSP Analyst: SI&RB Reference: E&E Bid&PM-10 Review Date: 9/2./94

Filt. ID No.	Lab Sample ID	Initial Filter (g)	Date:8/15 Time: 15:0 (g)	Initial Difference (g)	Date: 8/16 Time: 08:00 (g)	Sec Diff. (g)	Date: 8/17 Time: 14:00 (g)	Third Difference (g)	Date: Time: (g)	Fourth Difference (g)	Initial Weight (g)
21	4H03-21	4.1752	4.1613	0.0139	4.1667	-0.0054	4.1780	-0.0113			4.1613
22	4H03-22	4.0557	4.0412	0.0145	4.0449	-0.0037	4.0571	-0.0122			4.0412
23	4H03-23	4.2376	4.2517	-0.0141	4.2677	-0.016	4.2738	-0.0061			4.2517
24	4H03-24	4.2633	4.3418	-0.0785	4.3572	-0.0154	4.3567	0.0005			4.3418
25	4H03-25	4.2079	4.1853	0.0226	4.2069	-0.0216	4.2039	0.0030			4.1853
26	4H03-26	3.9807	3.9668	0.0139	3.9824	-0.0156	3.9850	-0.0026			3.9668
27	4H03-27	4.2726	4.2439	0.0287	4.2677	-0.0238	4.2726	-0.0049			4.2439
28	4H03-28	4.3314	4.2999	0.0315	4.3294	-0.0295	4.3179	0.0115			4.2999
29	4H03-29	4.1568	4.1328	0.024	4.1566	-0.0238	4.1570	-0.0004			4.1328
30	4H03-30	4.0447	4.0209	0.0238	4.0459	-0.025	4.0443	0.0016			4.0209

TOTAL SUSPENDED SOLIDS (TSP) CHEMISTRY BENCHSHEET

(Initial Weight)

SDG No.: 4H03 Method: E&E Bid & PM-10 Reviewer: SI

Analyte: TSP Analyst: SI&RB Reference: E&E Bid & PM-10 Review Date: 9/6/94

Filt. ID No.	Lab Sample ID	Initial Filter (g)	Date:8/13 18:54 (g)	Initial Difference (g)	Date: 8/14 Time:10:00 (g)	Sec Diff. (g)	Date: 8/14 20:15 (g)	Third Difference (g)	Date: 8/15 Time: 08:40 (g)	Fourth Difference (g)	Initial Weight (g)
1	4H03-1	4.1745	4.1760	-0.0015	4.1631	0.0129	4.1540	0.0091	4.1686	-0.0146	4.1686
2	4H03-2	4.2783	4.2893	-0.0110	4.2852	0.0041	4.2776	0.0076	4.2917	-0.0141	4.2917
3	4H03-3	4.3179	4.3174	0.0005	4.3169	0.0005	4.3077	0.0092	4.3231	-0.0154	4.3231
4	4H03-4	4.1669	4.1718	-0.0049	4.1639	0.0079	4.1582	0.0057	4.1726	-0.0144	4.1726
5	4H03-5	4.1858	4.1958	-0.0100	4.1838	0.0120	4.1753	0.0085	4.1857	-0.0104	4.1857
6	4H03-6	4.3476	4.3485	-0.0009	4.3390	0.0095	4.3283	0.0107	4.3424	-0.0141	4.3424
7	4H03-7	4.2878	4.2850	0.0028	4.2703	0.0147	4.2699	0.0004	4.2765	-0.0066	4.2765
8	4H03-8	4.1164	4.1321	-0.0157	4.1178	0.0143	4.1172	0.0006	4.1233	-0.0061	4.1233
9	4H03-9	4.1315	4.1532	-0.0217	4.1338	0.0194	4.1425	-0.0087	4.1363	0.0062	4.1363
10	4H03-10	4.2609	4.2882	-0.0273	4.2610	0.0272	4.2628	-0.0018	4.2639	-0.0011	4.2639
11	4H03-11	4.3328	4.3438	-0.0110	4.3306	0.0132	4.3332	-0.0026	4.3341	-0.0009	4.3341
12	4H03-12	4.1838	4.1918	-0.0080	4.1813	0.0105	4.1924	-0.0111	4.1847	0.0077	4.1847
13	4H03-13	4.1534	4.1546	-0.0012	4.1448	0.0098	4.1538	-0.0090	4.1467	0.0071	4.1467
14	4H03-14	4.3066	4.3128	-0.0062	4.3002	0.0126	4.3131	-0.0129	4.3078	0.0053	4.3078
15	4H03-15	4.3201	4.3237	-0.0036	4.3131	0.0106	4.3232	-0.0101	4.3190	0.0042	4.3190
16	4H03-16	4.1094	4.1114	-0.0020	4.1005	0.0109	4.1062	-0.0057	4.1022	0.0040	4.1022
17	4H03-17	4.0885	4.0997	-0.0112	4.0669	0.0328	4.0904	-0.0235	4.0841	0.0063	4.0841
18	4H03-18	4.2088	4.2178	-0.0090	4.1997	0.0181	4.2186	-0.0189	4.2028	0.0158	4.2028
19	4H03-19	4.3369	4.3449	-0.0080	4.3252	0.0197	4.3479	-0.0227	4.3264	0.0215	4.3264
20	4H03-20	4.1425	4.1606	-0.0181	4.1221	0.0385	4.1538	-0.0317	4.1322	0.0216	4.1322

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-40

Lab Name: CKY_INC. Contract:
Lab Code: CKY Case No.: SAS No.: SDG No.: 4H03
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-40
Level (low/med): LOW Date Received: 08/26/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	542			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	10	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1660			P
7440-47-3	Chromium	3.6			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	185			P
7439-89-6	Iron	692			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	274	B		P
7439-96-5	Manganese	17.6			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	346	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	273	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.9	B		P
7440-66-6	Zinc	32.6			P

Color Before: BROWN Clarity Before: Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

CC-A-39

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-32

Level (low/med): LOW__ Date Received: 08/26/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1040			P
7440-36-0	Antimony	21.4	B		P
7440-38-2	Arsenic	21.3	U		P
7440-43-9	Barium	15.7	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	2.4	U		P
7440-70-2	Calcium	336000			P
7440-47-3	Chromium	3.6	U		P
7440-48-4	Cobalt	3.6	U		P
7440-50-8	Copper	232			P
7439-89-6	Iron	1020			P
7439-92-1	Lead	20.0	U		P
7439-95-4	Magnesium	4760			P
7439-96-5	Manganese	41.8			P
7440-02-0	Nickel	10.1	U		P
7440-09-7	Potassium	671	B		P
7782-49-2	Selenium	39.4	U		P
7440-22-4	Silver	1.9	U	N	P
7440-23-5	Sodium	415	B		P
7440-28-0	Thallium	21.8	U		P
7440-62-2	Vanadium	5.6	B		P
7440-66-6	Zinc	52.0			P

Color Before: BLACK Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-38

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Water Lab Sample ID: 4H03-24
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Water

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	521			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	9.2	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1310			P
7440-47-3	Chromium	2.5			P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	246			P
7439-89-6	Iron	657			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	223	B		P
7439-96-5	Manganese	12.7			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	131	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	485	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	33.6			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-37

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SE Filter
Level (low/med): LOW__ Lab Sample ID: 4H03-16
% Solids: __0.0 Date Received: 08/22/94

Concentration Units (ug/L or mg/kg dry weight): UG/L SE Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1260			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	21.0	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	3930			P
7440-47-3	Chromium	3.5			P
7440-48-4	Cobalt	4.5	B		P
7440-50-8	Copper	225			P
7439-89-6	Iron	1450			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	583	B		P
7439-96-5	Manganese	32.5			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	302	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	476	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.4	B		P
7440-66-6	Zinc	33.1			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-36

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~

Level (low/med): LOW__

% Solids: __0.0

Lab Sample ID: 4H03-8

Date Received: 08/22/94

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	465			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.6	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1160	B		P
7440-47-3	Chromium	2.2	B		P
7440-48-4	Cobalt	3.3	B		P
7440-50-8	Copper	259			P
7439-89-6	Iron	512			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	205	B		P
7439-96-5	Manganese	11.7			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	151	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	441	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	22.6			P

Color Before: BLACK Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-35

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~ SL Liquid

Level (low/med): LOW__

% Solids: __0.0

Lab Sample ID: 4H03-39

Date Received: 08/26/94

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ SL Liquid

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	961			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	16.0	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1690			P
7440-47-3	Chromium	2.9			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	119			P
7439-89-6	Iron	1650			P
7439-92-1	Lead	21.3			P
7439-95-4	Magnesium	472	B		P
7439-96-5	Manganese	42.9			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	500	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	296	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	3.4	B		P
7440-66-6	Zinc	48.4			P

Color Before: BROWN Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-34

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-31

Level (low/med): LOW__ Date Received: 08/26/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Liter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1160			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	17.7	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	2100			P
7440-47-3	Chromium	2.9			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	134			P
7439-89-6	Iron	1540			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	540	B		P
7439-96-5	Manganese	43.6			P
7440-02-0	Nickel	5.2	B		P
7440-09-7	Potassium	621	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	422	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	3.7	B		P
7440-66-6	Zinc	47.2			P

Color Before: BROWN Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-33

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SOIL
Level (low/med): LOW__
% Solids: __0.0

Lab Sample ID: 4H03-23
Date Received: 08/22/94

Concentration Units (ug/L or mg/kg dry weight): UG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1590			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	22.3	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	2550			P
7440-47-3	Chromium	3.2			P
7440-48-4	Cobalt	8.2	B		P
7440-50-8	Copper	117			P
7439-89-6	Iron	2370			P
7439-92-1	Lead	18.3			P
7439-95-4	Magnesium	734	B		P
7439-96-5	Manganese	54.9			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	495	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	454	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	4.9	B		P
7440-66-6	Zinc	62.0			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-32

Lab Name: CKY_INC. Contract:
Lab Code: CKY Case No.: SAS No.: SDG No.: 4H03
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-15
Level (low/med): LOW Date Received: 08/22/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	503			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.0	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	837	B		P
7440-47-3	Chromium	1.8	U		P
7440-48-4	Cobalt	4.1	B		P
7440-50-8	Copper	142			P
7439-89-6	Iron	696			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	254	B		P
7439-96-5	Manganese	17.1			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	151	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	463	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	25.8			P

Color Before: BLACK Clarity Before: Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-30

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~ Filter Lab Sample ID: 4H03-33

Level (low/med): LOW__ Date Received: 08/26/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	811			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	13.8	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1510			P
7440-47-3	Chromium	2.0	B		P
7440-48-4	Cobalt	3.3	B		P
7440-50-8	Copper	43.0			P
7439-89-6	Iron	1080			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	375	B		P
7439-96-5	Manganese	28.1			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	425	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	282	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	3.0	B		P
7440-66-6	Zinc	43.5			P

Color Before: BROWN Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-29

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-25
Level (low/med): LOW__ Date Received: 08/26/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	841			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	14.2	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1740			P
7440-47-3	Chromium	3.0			P
7440-48-4	Cobalt	1.9	B		P
7440-50-8	Copper	35.4			P
7439-89-6	Iron	1090			P
7439-92-1	Lead	13.5			P
7439-95-4	Magnesium	403	B		P
7439-96-5	Manganese	31.8			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	518	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	379	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.8	B		P
7440-66-6	Zinc	45.7			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-31

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Filter Lab Sample ID: 4H03-7
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L ~~F~~ Filter SI

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	527			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	7.9	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	811	B		P
7440-47-3	Chromium	1.8	U		P
7440-48-4	Cobalt	4.6	B		P
7440-50-8	Copper	162			P
7439-89-6	Iron	786			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	250	B		P
7439-96-5	Manganese	18.2			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	196	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	471	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	34.8			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-28

Lab Name: CKY_INC. Contract:
Lab Code: CKY Case No.: SAS No.: SDG No.: 4H03
Matrix (soil/water): ~~WATER~~ Water Lab Sample ID: 4H03-17
Level (low/med): LOW Date Received: 08/22/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Liter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	490			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	9.4	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1050	B		P
7440-47-3	Chromium	2.5			P
7440-48-4	Cobalt	9.5	B		P
7440-50-8	Copper	39.0			P
7439-89-6	Iron	703			P
7439-92-1	Lead	10.0	U		P
7439-95-4	Magnesium	238	B		P
7439-96-5	Manganese	16.9			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	172	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	445	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	27.2			P

Color Before: BROWN Clarity Before: Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-27

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SE Lab Sample ID: 4H03-9
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ SE

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	427			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.0	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	908	B		P
7440-47-3	Chromium	2.0	B		P
7440-48-4	Cobalt	4.2	B		P
7440-50-8	Copper	38.9			P
7439-89-6	Iron	570			P
7439-92-1	Lead	10.6	B		P
7439-95-4	Magnesium	240	B		P
7439-96-5	Manganese	14.1			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	131	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	471	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	31.2			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-26

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Filter
Level (low/med): LOW__ Lab Sample ID: 4H03-1
% Solids: __0.0 Date Received: 08/22/94

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	433			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	7.4	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	909	B		P
7440-47-3	Chromium	1.8	U		P
7440-48-4	Cobalt	5.1	B		P
7440-50-8	Copper	40.2			P
7439-89-6	Iron	548			P
7439-92-1	Lead	11.6	B		P
7439-95-4	Magnesium	209	B		P
7439-96-5	Manganese	11.7			P
7440-02-0	Nickel	5.2	B		P
7440-09-7	Potassium	93.0	U		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	437	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	33.9			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-25

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SOIL Lab Sample ID: 4H03-36
Level (low/med): LOW__ Date Received: 08/26/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	441			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.1	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	913	B		P
7440-47-3	Chromium	1.8	U		P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	58.5			P
7439-89-6	Iron	924			P
7439-92-1	Lead	33.9			P
7439-95-4	Magnesium	219	B		P
7439-96-5	Manganese	20.0			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	357	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	289	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.0	B		P
7440-66-6	Zinc	95.6			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

CC-A-24

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ F. Hg Lab Sample ID: 4H03-28
Level (low/med): LOW__ Date Received: 08/26/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L F. Hg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	696			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	10.6	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1350			P
7440-47-3	Chromium	2.4	B		P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	97.7			P
7439-89-6	Iron	1030			P
7439-92-1	Lead	23.6			P
7439-95-4	Magnesium	323	B		P
7439-96-5	Manganese	26.2			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	432	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	303	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.4	B		P
7440-66-6	Zinc	68.3			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-23

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Filter Lab Sample ID: 4H03-20
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	408			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	7.0	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	716	B		P
7440-47-3	Chromium	2.5	B		P
7440-48-4	Cobalt	3.2	B		P
7440-50-8	Copper	51.1			P
7439-89-6	Iron	1080			P
7439-92-1	Lead	40.2			P
7439-95-4	Magnesium	204	B		P
7439-96-5	Manganese	21.8			P
7440-02-0	Nickel	5.1	B		P
7440-09-7	Potassium	159	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	523	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.9	B		P
7440-66-6	Zinc	69.5			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-22

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-12

Level (low/med): LOW__ Date Received: 08/22/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	477			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	7.2	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	819	B		P
7440-47-3	Chromium	2.5	B		P
7440-48-4	Cobalt	4.2	B		P
7440-50-8	Copper	60.6			P
7439-89-6	Iron	971			P
7439-92-1	Lead	13.8			P
7439-95-4	Magnesium	218	B		P
7439-96-5	Manganese	22.1			P
7440-02-0	Nickel	6.2	B		P
7440-09-7	Potassium	159	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	423	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	42.6			P

Color Before: BROWN Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-21

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Filter Lab Sample ID: 4H03-4
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	471			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	7.8	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1130	B		P
7440-47-3	Chromium	2.1	B		P
7440-48-4	Cobalt	5.1	B		P
7440-50-8	Copper	69.9			P
7439-89-6	Iron	1270			P
7439-92-1	Lead	31.4			P
7439-95-4	Magnesium	228	B		P
7439-96-5	Manganese	25.1			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	180	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	724	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	58.5			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-20

Lab Name: CKY_INC. Contract:
Lab Code: CKY Case No.: SAS No.: SDG No.: 4H03
Matrix (soil/water): ~~WATER~~ WATER
Level (low/med): LOW
% Solids: 0.0

Lab Sample ID: 4H03-35
Date Received: 08/26/94

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	562			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	9.0	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	960	B		P
7440-47-3	Chromium	1.8	U		P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	105			P
7439-89-6	Iron	974			P
7439-92-1	Lead	39.6			P
7439-95-4	Magnesium	251	B		P
7439-96-5	Manganese	21.0			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	393	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	281	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.2	B		P
7440-66-6	Zinc	105			P

Color Before: BROWN Clarity Before: Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-19

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Water Lab Sample ID: 4H03-27
Level (low/med): LOW__ Date Received: 08/26/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L Filter SE

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	733			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	11.3	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1400			P
7440-47-3	Chromium	2.8			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	99.0			P
7439-89-6	Iron	1020			P
7439-92-1	Lead	25.7			P
7439-95-4	Magnesium	340	B		P
7439-96-5	Manganese	26.6			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	418	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	325	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	3.0	B		P
7440-66-6	Zinc	71.1			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-18

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Water Lab Sample ID: 4H03-19
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Liter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	389			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	6.7	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	799	B		P
7440-47-3	Chromium	1.8	B		P
7440-48-4	Cobalt	5.1	B		P
7440-50-8	Copper	69.0			P
7439-89-6	Iron	1050			P
7439-92-1	Lead	41.3			P
7439-95-4	Magnesium	217	B		P
7439-96-5	Manganese	21.7			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	151	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	666	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	69.2			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-17

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-11
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	458			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	7.7	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	936	B		P
7440-47-3	Chromium	2.4	B		P
7440-48-4	Cobalt	6.6	B		P
7440-50-8	Copper	110			P
7439-89-6	Iron	1040			P
7439-92-1	Lead	22.1			P
7439-95-4	Magnesium	249	B		P
7439-96-5	Manganese	24.4			P
7440-02-0	Nickel	5.1	B		P
7440-09-7	Potassium	184	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	595	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	50.9			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-16

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SOIL Lab Sample ID: 4H03-3
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ SOIL

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	547			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.8	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1150	B		P
7440-47-3	Chromium	2.8			P
7440-48-4	Cobalt	6.4	B		P
7440-50-8	Copper	100			P
7439-89-6	Iron	1440			P
7439-92-1	Lead	44.5			P
7439-95-4	Magnesium	262	B		P
7439-96-5	Manganese	27.5			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	196	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	651	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	79.1			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-15

Lab Name: CKY_INC. Contract:
Lab Code: CKY Case No.: SAS No.: SDG No.: 4H03
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-37
Level (low/med): LOW Date Received: 08/26/94
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ mg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	691			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	11.9	B		P
7440-43-9	Barium	12.9	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	929	B		P
7440-47-3	Chromium	1.8	U		P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	52.9			P
7439-89-6	Iron	2930			P
7439-92-1	Lead	197			P
7439-95-4	Magnesium	304	B		P
7439-96-5	Manganese	30.9			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	457	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	306	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.7	B		P
7440-66-6	Zinc	144			P

Color Before: BROWN Clarity Before: Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-14

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-29
Level (low/med): LOW__ Date Received: 08/26/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	826			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	13.7	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1410			P
7440-47-3	Chromium	2.7			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	71.9			P
7439-89-6	Iron	2290			P
7439-92-1	Lead	127			P
7439-95-4	Magnesium	358	B		P
7439-96-5	Manganese	32.3			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	493	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	408	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.7	B		P
7440-66-6	Zinc	153			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-13

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SL Filter
Level (low/med): LOW__ Lab Sample ID: 4H03-21
% Solids: __0.0 Date Received: 08/22/94

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ SL Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	453			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.2	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	780	B		P
7440-47-3	Chromium	2.1	B		P
7440-48-4	Cobalt	2.4	B		P
7440-50-8	Copper	63.2			P
7439-89-6	Iron	1500			P
7439-92-1	Lead	92.8			P
7439-95-4	Magnesium	214	B		P
7439-96-5	Manganese	19.4			P
7440-02-0	Nickel	5.9	B		P
7440-09-7	Potassium	168	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	392	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	84.3			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-12

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Filter Lab Sample ID: 4H03-13
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	605			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	10.3	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.5			P
7440-70-2	Calcium	852	B		P
7440-47-3	Chromium	2.3	B		P
7440-48-4	Cobalt	3.5	B		P
7440-50-8	Copper	66.3			P
7439-89-6	Iron	2110			P
7439-92-1	Lead	123			P
7439-95-4	Magnesium	278	B		P
7439-96-5	Manganese	24.1			P
7440-02-0	Nickel	6.1	B		P
7440-09-7	Potassium	315	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	588	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	92.1			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-11

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-5
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	573			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	9.0	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	781	B		P
7440-47-3	Chromium	2.3	B		P
7440-48-4	Cobalt	3.3	B		P
7440-50-8	Copper	53.5			P
7439-89-6	Iron	1830			P
7439-92-1	Lead	133			P
7439-95-4	Magnesium	227	B		P
7439-96-5	Manganese	19.0			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	196	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	520	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	100			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-10

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~ Water

Level (low/med): LOW__

% Solids: __0.0

Lab Sample ID: 4H03-38

Date Received: 08/26/94

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Kg Water

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	543			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.1	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	827	B		P
7440-47-3	Chromium	2.2	B		P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	49.0			P
7439-89-6	Iron	798			P
7439-92-1	Lead	27.4			P
7439-95-4	Magnesium	218	B		P
7439-96-5	Manganese	17.3			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	386	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	274	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.5	B		P
7440-66-6	Zinc	57.6			P

Color Before: BROWN Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-9

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SOIL
Level (low/med): LOW__ Lab Sample ID: 4H03-30
% Solids: __0.0 Date Received: 08/26/94

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	758			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	11.7	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1440			P
7440-47-3	Chromium	3.0			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	98.8			P
7439-89-6	Iron	991			P
7439-92-1	Lead	16.7			P
7439-95-4	Magnesium	356	B		P
7439-96-5	Manganese	27.5			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	504	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	448	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	3.0	B		P
7440-66-6	Zinc	65.5			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-8

Lab Name: CKY_INC. Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: 4H03

Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-22

Level (low/med): LOW Date Received: 08/22/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	461			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	7.8	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	800	B		P
7440-47-3	Chromium	2.5			P
7440-48-4	Cobalt	3.2	B		P
7440-50-8	Copper	57.9			P
7439-89-6	Iron	1020			P
7439-92-1	Lead	54.4			P
7439-95-4	Magnesium	215	B		P
7439-96-5	Manganese	21.2			P
7440-02-0	Nickel	5.6	B		P
7440-09-7	Potassium	229	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	531	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	86.0			P

Color Before: BLACK Clarity Before: Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-7

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-14
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	597			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.6	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	887	B		P
7440-47-3	Chromium	2.0	B		P
7440-48-4	Cobalt	4.0	B		P
7440-50-8	Copper	71.4			P
7439-89-6	Iron	1180			P
7439-92-1	Lead	72.9			P
7439-95-4	Magnesium	287	B		P
7439-96-5	Manganese	21.4			P
7440-02-0	Nickel	5.2	B		P
7440-09-7	Potassium	204	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	513	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.6	B		P
7440-66-6	Zinc	92.0			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-6

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ SOIL
Level (low/med): LOW__
% Solids: __0.0

Lab Sample ID: 4H03-6
Date Received: 08/22/94

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	418			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	6.7	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	717	B		P
7440-47-3	Chromium	2.1	B		P
7440-48-4	Cobalt	4.0	B		P
7440-50-8	Copper	90.1			P
7439-89-6	Iron	1160			P
7439-92-1	Lead	94.5			P
7439-95-4	Magnesium	217	B		P
7439-96-5	Manganese	25.8			P
7440-02-0	Nickel	5.0	B		P
7440-09-7	Potassium	163	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	527	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	145			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-5

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-34
Level (low/med): LOW__ Date Received: 08/26/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ F. Ltr

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	521			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.4	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	867	B		P
7440-47-3	Chromium	2.6			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	16.3			P
7439-89-6	Iron	799			P
7439-92-1	Lead	23.3			P
7439-95-4	Magnesium	249	B		P
7439-96-5	Manganese	26.2			P
7440-02-0	Nickel	5.0	U		P
7440-09-7	Potassium	279	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	262	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.8	B		P
7440-66-6	Zinc	188			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-4

Lab Name: CKY_INC._____ Contract: _____

Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__

Matrix (soil/water): ~~WATER~~ Water

Level (low/med): LOW__ Lab Sample ID: 4H03-26

% Solids: __0.0 Date Received: 08/26/94

Concentration Units (ug/L or mg/kg dry weight): UG/L Water

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	671			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	10.4	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	1310			P
7440-47-3	Chromium	3.3			P
7440-48-4	Cobalt	1.8	U		P
7440-50-8	Copper	21.9			P
7439-89-6	Iron	833			P
7439-92-1	Lead	16.3			P
7439-95-4	Magnesium	315	B		P
7439-96-5	Manganese	26.9			P
7440-02-0	Nickel	5.1	B		P
7440-09-7	Potassium	389	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	317	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	2.2	B		P
7440-66-6	Zinc	97.5			P

Color Before: BROWN Clarity Before: _____ Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-3

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): WATER
Level (low/med): LOW__ Lab Sample ID: 4H03-18
% Solids: __0.0 Date Received: 08/22/94

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	350			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	5.8	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.2	U		P
7440-70-2	Calcium	626	B		P
7440-47-3	Chromium	1.9	B		P
7440-48-4	Cobalt	4.0	B		P
7440-50-8	Copper	21.1			P
7439-89-6	Iron	848			P
7439-92-1	Lead	61.6			P
7439-95-4	Magnesium	184	B		P
7439-96-5	Manganese	20.5			P
7440-02-0	Nickel	6.7	B		P
7440-09-7	Potassium	151	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	455	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	191			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-2

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Lab Sample ID: 4H03-10
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/~~L~~ S2

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	442			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	8.4	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	1.6			P
7440-70-2	Calcium	814	B		P
7440-47-3	Chromium	2.6			P
7440-48-4	Cobalt	5.5	B		P
7440-50-8	Copper	23.8			P
7439-89-6	Iron	930			P
7439-92-1	Lead	40.2			P
7439-95-4	Magnesium	237	B		P
7439-96-5	Manganese	25.0			P
7440-02-0	Nickel	9.4	B		P
7440-09-7	Potassium	176	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	476	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	289			P

Color Before: BLACK Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CC-A-1

Lab Name: CKY_INC._____ Contract: _____
Lab Code: CKY___ Case No.: _____ SAS No.: _____ SDG No.: 4H03__
Matrix (soil/water): ~~WATER~~ Filter Lab Sample ID: 4H03-2
Level (low/med): LOW__ Date Received: 08/22/94
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): ~~UG/L~~ Filter

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	631			P
7440-36-0	Antimony	9.0	U		P
7440-38-2	Arsenic	10.7	U		P
7440-43-9	Barium	10.4	B		P
7440-41-7	Beryllium	0.15	U		P
7440-43-9	Cadmium	3.1			P
7440-70-2	Calcium	944	B		P
7440-47-3	Chromium	2.3	B		P
7440-48-4	Cobalt	4.6	B		P
7440-50-8	Copper	41.7			P
7439-89-6	Iron	2290			P
7439-92-1	Lead	147			P
7439-95-4	Magnesium	282	B		P
7439-96-5	Manganese	45.4			P
7440-02-0	Nickel	9.8	B		P
7440-09-7	Potassium	262	B		P
7782-49-2	Selenium	19.7	U		P
7440-22-4	Silver	0.95	U		P
7440-23-5	Sodium	746	B		P
7440-28-0	Thallium	10.9	U		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	413			P

Color Before: BROWN Clarity Before: _____ Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE16

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE16

Level (low/med): LOW Date Received: 09/13/94

% Solids: 78.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12500			P
7440-36-0	Antimony	12.7	U	N	P
7440-38-2	Arsenic	2.5	U		F
7440-39-3	Barium	147			P
7440-41-7	Beryllium	1.3	U		P
7440-43-9	Cadmium	1.8			P
7440-70-2	Calcium	18000			P
7440-47-3	Chromium	17.7			P
7440-48-4	Cobalt	7.8	B		P
7440-50-8	Copper	15.0			P
7439-89-6	Iron	21700		E	P
7439-92-1	Lead	29.0		S	F
7439-95-4	Magnesium	8570			P
7439-96-5	Manganese	376			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	14.2			P
7440-09-7	Potassium	4440			P
7782-49-2	Selenium	1.3	U	WN	F
7440-22-4	Silver	2.5	U		P
7440-23-5	Sodium	280	B		P
7440-28-0	Thallium	0.51	U		F
7440-62-2	Vanadium	38.0			P
7440-66-6	Zinc	227		E	P
	Cyanide	0.64	U		C

Color Before: BROWN Clarity Before: Texture: F._SAN

Color After: L._YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE15

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE15

Level (low/med): LOW Date Received: 09/13/94

% Solids: 72.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15300			P
7440-36-0	Antimony	13.7	U	N	P
7440-38-2	Arsenic	3.0	B		F
7440-39-3	Barium	221			P
7440-41-7	Beryllium	1.4	U		P
7440-43-9	Cadmium	2.3			P
7440-70-2	Calcium	20000			P
7440-47-3	Chromium	21.9			P
7440-48-4	Cobalt	11.2	B		P
7440-50-8	Copper	21.0			P
7439-89-6	Iron	29700		E	P
7439-92-1	Lead	38.7		+	F
7439-95-4	Magnesium	9870			P
7439-96-5	Manganese	575			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	17.2			P
7440-09-7	Potassium	5010			P
7782-49-2	Selenium	1.4	U	EN	F
7440-22-4	Silver	2.7	U		P
7440-23-5	Sodium	322	B		P
7440-28-0	Thallium	0.55	U		F
7440-62-2	Vanadium	55.8			P
7440-66-6	Zinc	201		E	P
	Cyanide	0.69	U		C

Color Before: G._BROWN_ Clarity Before: Texture: F._SAN

Color After: L._YELLOW Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CCSE14

Lab Name: CKY_INC Contract:

Lab Code: CKY Case No.: SAS No.: SDG No.: CCSE01

Matrix (soil/water): SOIL Lab Sample ID: CCSE14

Level (low/med): LOW Date Received: 09/13/94

% Solids: 75.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18500			P
7440-36-0	Antimony	13.2	U	N	P
7440-38-2	Arsenic	5.8	B		F
7440-39-3	Barium	175			P
7440-41-7	Beryllium	1.3	U		P
7440-43-9	Cadmium	2.7			P
7440-70-2	Calcium	29700			P
7440-47-3	Chromium	19.1			P
7440-48-4	Cobalt	8.5	B		P
7440-50-8	Copper	27.2			P
7439-89-6	Iron	25900		E	P
7439-92-1	Lead	111		S	F
7439-95-4	Magnesium	14900			P
7439-96-5	Manganese	560			P
7439-97-6	Mercury	0.05	U		AV
7440-02-0	Nickel	16.4			P
7440-09-7	Potassium	5350			P
7782-49-2	Selenium	1.3	U	EN	F
7440-22-4	Silver	2.6	U		P
7440-23-5	Sodium	284	B		P
7440-28-0	Thallium	0.53	U		F
7440-62-2	Vanadium	39.5			P
7440-66-6	Zinc	352		E	P
	Cyanide	0.66	U		C

Color Before: D. BROWN Clarity Before: Texture: FINE

Color After: L. YELLOW Clarity After: CLEAR Artifacts:

Comments: